

2006

## Exploring young people's concepts of smoking addiction: Perceived opportunities to try smoking without becoming addicted

Calvin Wang  
*Edith Cowan University*

Follow this and additional works at: <https://ro.ecu.edu.au/theses>



Part of the [Public Health Education and Promotion Commons](#)

---

### Recommended Citation

Wang, C. (2006). *Exploring young people's concepts of smoking addiction: Perceived opportunities to try smoking without becoming addicted*. Edith Cowan University. Retrieved from <https://ro.ecu.edu.au/theses/102>

This Thesis is posted at Research Online.  
<https://ro.ecu.edu.au/theses/102>

# Edith Cowan University

## Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement. Where the reproduction of such material is done without attribution of authorship, with false attribution of authorship or the authorship is treated in a derogatory manner, this may be a breach of the author's moral rights contained in Part IX of the Copyright Act 1968 (Cth).
- Courts have the power to impose a wide range of civil and criminal sanctions for infringement of copyright, infringement of moral rights and other offences under the Copyright Act 1968 (Cth). Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

**EXPLORING YOUNG PEOPLE'S CONCEPTS OF SMOKING  
ADDICTION: PERCEIVED OPPORTUNITIES TO TRY SMOKING  
WITHOUT BECOMING ADDICTED**

**Calvin Wang**  
B.Comm, MBA

**This thesis is presented in fulfilment of the requirements for the degree of**

**Doctor of Philosophy**

**Faculty of Business and Law**

**Edith Cowan University**

**March 2006**

## USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

## ABSTRACT

---

This study explores how young people conceptualise addiction to smoking and, also the relationship between young people's addiction beliefs and intentions to smoke cigarettes. Addiction to smoking is a major health problem, not just for adults, but also for young smokers, up to 60% of whom are dependent on nicotine. However, anti-smoking prevention efforts targeted at young people generally emphasise ill-health effects and little attention is paid to addiction education which is generally considered relevant only to adult smoking and cessation efforts. Perhaps as a consequence, young people appear to have many misconceptions and unrealistic ideas about addiction, and these may possibly have influenced initial decisions to take up smoking. For example, between 50% and 60% of young smokers believe that it would be easy or very easy to stop smoking altogether if and when they choose to and the majority of daily smokers mistakenly believe that they will not be smoking for more than five years. For these young smokers, becoming addicted is often an unforeseen consequence and most are surprised to find that they cannot give up smoking as easily as they thought. The majority of addicted smokers regret ever taking up smoking but nevertheless continue to smoke cigarettes for perhaps 30 to 40 years because they find it very difficult to stop. This backdrop provides the impetus for the present study.

A two stage, dual methodology research design was utilised in this study. The first stage consisted of a qualitative exploration of young people's perceptions of smoking addiction which informed the subsequent development of a large-scale quantitative investigation. Boys and girls from government and non-government schools in metropolitan Perth, Western Australia, participated in both stages of the study.

In stage one, individual in-depth interviews were conducted with sixty-eight Years 5 and 10 boys and girls. During the interviews, young people were initially directed to discuss cigarette smoking. Major concepts investigated included 'what is smoking?', 'why do people smoke?', 'what happens when people smoke?', 'would you smoke and why/why not?', 'what is addiction?', 'how does it happen?', and 'how quickly does it happen?'. A content analysis was performed to identify, group and compare themes in the interview data that provided insights into young people's understanding of smoking addiction. In stage two, a survey of 875 boys and girls from Years 4 to 10 was conducted. The questions, developed from stage one data, quantitatively explored young people's conceptualisation of general and smoking addiction, and the relationship between addiction beliefs and intentions to smoke cigarettes. Analyses of addiction conceptualisation data utilised chi-square test of independence, MANOVA, ANOVA and factor analysis while the relationship between beliefs and smoking intentions was analysed using logistic regression.

Overall, results showed that addiction was a salient issue for the majority of primary and secondary school students. Not wanting to become addicted was a main reason given by many non-smokers for not smoking, and by many current smokers for wanting to stop smoking. Being addicted to smoking was seen as losing or having no 'control' which, for a large proportion of respondents, was the single worst consequence of addiction.

For current smokers, concern over addiction corresponded with lower odds of intentions to continue smoking and intentions to still be smoking when grown up.

Similarly for non-smokers, concern over being addicted corresponded with lower odds for intentions to experiment with smoking and in particular, with lower odds for intentions to take up regular smoking.

Even so, non-smokers who believed that it was possible to try smoking without being 'hooked' were significantly more likely to have intentions to try compared to those who did not think this was possible. Beliefs relating to the speed of addiction and strategies which circumvent addiction were found to correlate with non-smokers' intentions to try smoking. For speed of addiction, non-smokers who believed that addiction happens immediately (e.g. after smoking one cigarette or smoking once) were more committed to never smoke; those who believed that addiction happens after a delay (e.g. after smoking a few cigarettes or a few times) were more likely to have intentions to try smoking, and these intentions increased with perceptions of greater delays. Believing that addiction can be avoided by intentionally not enjoying smoking or not liking the taste of smoking correlated with increased odds for intentions to try smoking.

This knowledge has implications for the relevance of addiction education for young people. In particular, findings that show how concepts of addiction are related to both smokers and non-smokers' intentions to smoke cigarettes can assist in future research for the development of strategies in primary prevention and cessation intervention efforts targeted at youth populations.

## DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education.
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
- (iii) contain any defamatory material.

I also grant permission for the Library at Edith Cowan University to make duplicate copies of my thesis as required.

Signature: \_\_\_\_\_

Date: 6<sup>th</sup> March 2006



## ACKNOWLEDGEMENTS

---

I would like to gratefully acknowledge the encouragement and guidance of Professor Nadine Henley who supervised this study. Her belief in and support of this project (and me) has made this very long and arduous ‘apprenticeship’ a tremendously rewarding experience. Thank you for the gift of learning.

I owe an immeasurable debt to Professor Rob Donovan who co-supervised this work. His lead through the methodological and statistical maze was invaluable to the completion of this thesis. Thank you especially for the tireless effort expended in combing through the jumble of analyses to distil the essence of findings. I have learnt much from your insightful direction.

I would also like to acknowledge the expert advice on statistics of Doctor Susan Hill from the Graduate School. Her help with SPSS in particular has allowed my computer to live out the remainder of its natural existence intact. Many principals, teachers and students gave up valuable class-time in allowing me to gather my data. Their anonymity masks the significance of their contribution to this study.

My fellow candidates Eva, Beth, William and Adi (who have long since graduated), thank you for the companionship, help and advice, and the many coffees, pizzas and bottles of ‘thinking juice’; and Martine for always being there with a ‘you can do it’ (which I did not always believe).

Finally, Mum, Dad and Colin. Your unwavering support and endless patience can never be matched by mere words written on this (or any) page.

# TABLE OF CONTENTS

---

## **Chapter 1: INTRODUCTION**

1.1 <i>The research problem</i>	1
1.2 <i>Objectives of the study</i>	2
1.3 <i>Methodology</i>	3
1.4 <i>Significance of the study</i>	3
1.5 <i>Original contribution of the study</i>	3
1.6 <i>Terminology</i>	4
1.7 <i>Thesis Outline</i>	4

## **Chapter 2: SMOKING PREVALENCE, PREDICTORS AND ADDICTION**

2.1 <i>Smoking prevalence</i>	6
2.1.1 Introduction	6
2.1.2 Australian Youth Smoking Prevalence	7
2.2 <i>Smoking predictors</i>	9
2.2.1 Introduction	9
2.2.2 Factors Relating to Smoking Initiation	10
2.2.2.1 Socio-Demographic Factors	12
2.2.2.2 Environmental Factors	18
2.2.2.3 Behavioural Factors	33

2.2.2.4 Personal Factors	38
2.2.3 Summary of Predictors	49
2.3 <i>Smoking addiction</i>	50
2.3.1 Introduction	50
2.3.2 Perceptions of Smoking Addiction	51
2.3.3 Conclusion	53
2.4 <i>Summary</i>	54

### **Chapter 3: YOUNG PEOPLE’S CONCEPTUALISATION OF ADDICTION**

3.1 <i>Introduction</i>	55
3.2 <i>Methodology</i>	56
3.2.1 Sample Selection	56
3.2.2 Interview Procedure	59
3.2.3 Analyses	60
3.3 <i>Results</i>	61
3.3.1 Smoking Addiction Concepts: 10 Year Olds	61
3.3.1.1 What is Addiction?	62
3.3.1.2 Nature of Addiction	64
3.3.1.3 Onset of Smoking Addiction	65
3.3.1.4 Intentions to Trial Cigarettes	66
3.3.2 Smoking Addiction Concepts: 15 year olds	67
3.3.2.1 What is Addiction?	68
3.3.2.2 Nature of Addiction	71
3.3.2.3 Onset of Smoking Addiction	73
3.3.2.4 Intentions to Trial Cigarettes	75
3.3.3 Smoking Addiction and Health	77
3.4 <i>Discussion</i>	79
3.5 <i>Limitations</i>	82
3.6 <i>Summary</i>	83

## Chapter 4: METHOD OF MAIN STUDY

4.1 <i>Introduction</i>	84
4.2 <i>Theoretical framework</i>	85
4.3 <i>Research hypotheses</i>	86
4.3.1 Non-Smokers	87
H1 Smoking Without Becoming Addicted	87
H2 Loss of Control	87
H3 Avoidance Strategies	87
H4 Addiction Concerns	88
4.3.2 Current Smokers	88
H5 Addiction Concerns (I)	89
H6 Addiction Concerns (II)	89
4.4 <i>Methodology</i>	89
4.4.1 Sample Selection	89
4.4.2 Sample Size	90
4.4.3 Sampling Procedure	92
4.4.4 Research Instrument	93
4.4.4.1 Question Development	94
4.4.5 Questionnaire Pre-Test	101
4.4.6 Data Collection Protocol	103
4.5 <i>Data analysis</i>	103
4.6 <i>Limitations</i>	105
4.6.1 Smoking Prevalence	105
4.6.2 Reliability of Self-Reported Smoking	106
4.6.3 Data Analysis	108
4.7 <i>Summary</i>	109

## **Chapter 5: RESULTS OF MAIN STUDY – PRIMARY SCHOOL STUDENTS**

5.1 <i>Introduction</i>	110
5.2 <i>Primary school data</i>	111
5.2.1 Sample Overview	111
5.2.2 Weighting	112
5.2.3 Smoking Status	113
5.3 <i>Addiction analyses</i>	115
5.3.1 Conceptualisation of Addiction in General	116
5.3.1.1 Perceptions of General Addictiveness	117
5.3.1.2 Perceptions of Addiction Strength	128
5.3.1.3 Perceptions of Difficulty in Stopping an Addiction	134
5.3.1.4 Perceptions of Addiction Ease	138
5.3.1.5 Perceptions of Addiction Danger	141
5.3.1.6 Summary	143
5.3.2 Conceptualisation of Smoking and Addiction	149
5.3.2.1 Perceptions of the Role of Addiction in Adult and Youth Smoking	149
5.3.2.2 Perceptions of Why People Get Addicted to Smoking	157
5.3.2.3 Perceptions of When Addiction Occurs	160
5.3.2.4 Perceptions of What It Means to be Addicted to Smoking	163
5.3.3 Perceptions of Smoking Addiction and Intentions to Smoke	170
5.3.3.1 Opportunities for Smoking without Becoming Addicted	173
5.3.3.2 Avoidance Strategies	182
5.3.3.3 Never Smokers' Addiction Concerns and Reasons For Not Smoking	186

5.3.3.4 Addictive Characteristics of Cigarettes	194
5.4 Summary	197

## **Chapter 6: RESULTS OF MAIN STUDY – SECONDARY SCHOOL STUDENTS**

6.1 <i>Introduction</i>	200
6.2 <i>Secondary school respondents</i>	201
6.2.1 Sample Overview	201
6.2.2 Weighting	202
6.2.3 Smoking Status	203
6.3 <i>Addiction analyses</i>	205
6.3.1 Conceptualisation of Addiction in General	206
6.3.1.1 Perceptions of General Addictiveness	206
6.3.1.2 Perceptions of Addiction Strength	216
6.3.1.3 Perceptions of Difficulty in Stopping an Addiction	224
6.3.1.4 Perceptions of Addiction Ease	226
6.3.1.5 Perceptions of Addiction Danger	229
6.3.1.6 Summary	232
6.3.2 Conceptualisation of Smoking and Addiction	237
6.3.2.1 Perceptions of the Role of Addiction in Adult and Youth Smoking	237
6.3.2.2 Perceptions of Why People Get Addicted to Smoking	245
6.3.2.3 Perceptions of When Addiction Occurs	246
6.3.2.4 Perceptions of What It Means to Be Addicted to Smoking	250
6.3.3 Perceptions of Smoking Addiction and Intentions to Smoke	256
6.3.3.1 Opportunities for Smoking Without Addiction	260

6.3.3.2 Avoidance Strategies	268
6.3.3.3 Addiction Concerns – Never Smokers	271
6.3.3.4 Addiction Concerns – Current Smokers	278
6.3.3.5 Addictive Characteristics of Cigarettes	285
6.4 <i>Summary</i>	288

## **Chapter 7: DISCUSSION, LIMITATIONS AND IMPLICATIONS**

7.1 <i>Summary</i>	290
7.2 <i>Perceptions of smoking addiction and addiction in general</i>	292
7.2.1 Perceptions of Addiction in General	293
7.2.2 Perceptions of the Nature of Smoking Addiction	295
7.3 <i>Smoking addiction and intentions to smoke</i>	300
7.3.1 Concerns about Becoming Addicted to Smoking	300
7.3.2 Perceived Opportunities to Smoke Without Becoming Addicted	302
7.3.3 Loss of Control	304
7.4 <i>Limitations of the study</i>	308
7.5 <i>Implications of the study and future research</i>	309
7.5.1 Implications for Practitioners	309
7.5.1 Future Research	311
7.6 <i>Concluding comments</i>	312

## **BIBLIOGRAPHY**

## **APPENDICES**

<i>Appendix 4.1 – Questionnaire for Main Study</i>	356
<i>Appendix Table 5.1 – Perceptions of General Addictiveness x Sex</i>	372
<i>Appendix Table 5.2 – Perceptions of General Addictiveness x School Year</i>	374
<i>Appendix Table 5.3 – Perceptions of Addictive Strength x Sex</i>	376
<i>Appendix Table 5.4 – Perceptions of Addictive Strength x</i>	



<i>School Year</i>	378
<i>Appendix Table 6.1 – Perceptions of General Addictiveness x Sex</i>	380
<i>Appendix Table 6.2 – Perceptions of General Addictiveness x School Year</i>	381
<i>Appendix Table 6.3 – Perceptions of Addictive Strength x Sex</i>	383
<i>Appendix Table 6.4 – Perceptions of Addictive Strength x School Year</i>	385

## LIST OF TABLES

---

Table 2.1	Smoking Status Of Young People In Australia	8
Table 2.2	Mean Number Of Cigarettes Smoked Per Week By Young People In Australia	9
Table 2.3	Factors Predicting Youth Smoking Initiation	12
Table 3.1	Sample Overview For Qualitative Study	58
Table 3.2	Sample Overview – Primary School, Year Five (10 Year Olds)	62
Table 3.3	Sample Overview – Secondary School, Year Ten (15 Year Olds)	68
Table 4.1	Sample Size Determination	91
Table 4.2	Smoking Activity of Australian Secondary School Students x Age	105
Table 5.1	Overview Of Primary School Respondents	111
Table 5.2	Weighting Table	113
Table 5.3	Smoking Status Of Primary School Respondents	114
Table 5.4	Principal Component Analysis Of Items with Varimax Rotation Of 3 Extracted Factors	121
Table 5.5	Multivariate Test Statistics Of Differences In Perceptions Of Addictiveness For Sex And School Year	124
Table 5.6	ANOVA For Perceptions Of Addictiveness x School Year	125

Table 5.7	ANOVA For Perceptions Of Addictiveness x Sex x School Year	127
Table 5.8	Perceptions Of Addictive Strength	130
Table 5.9	Multivariate Test Statistics Of Differences In Perceptions Of Addictive Strength For Sex And School Year	131
Table 5.10	ANOVA For Perceptions Of Addictive Strength x School Year	132
Table 5.11	Difficulty In Stopping – Items ranked ‘Very Hardest’, ‘Next Hardest’ & ‘Third Hardest’ To Stop	135
Table 5.12	Selected Item Rankings For Difficulty In Stopping x Sex	136
Table 5.13	Selected Item Rankings For Difficulty In Stopping x School Year	137
Table 5.14	Addiction Ease – Items ranked ‘Very Easiest’, ‘Next Easiest’ & ‘Third Easiest’ To Be Addicted To	138
Table 5.15	Selected Item Rankings For Ease Of Addiction x Sex	140
Table 5.16	Selected Item Rankings For Ease Of Addiction x School Year	140
Table 5.17	Addiction Danger – Items ranked ‘Most Dangerous’, ‘Next Most Dangerous’ & ‘Third Most Dangerous’ To Be Addicted To	141
Table 5.18	Selected Item Rankings For Addiction Danger x Sex	142
Table 5.19	Selected Item Rankings For Addiction Danger x School Year	143
Table 5.20	Summary Of Main Results – Primary School Students’ Perceptions Of General Addiction	147
Table 5.21	Summary Of Main Results – Primary School Students’ Perceptions Of Cigarette Addictiveness x Smoking Status	148
Table 5.22	Perceptions Of Whether Adults & Youths Are Addicted x School Year	151
Table 5.23	Perceptions Of Whether Adults & Youths Are Addicted x Smoking Status	152

Table 5.24	Perceptions Of Why Adults & Youths Smoke x Smoking Status	154
Table 5.25	Perceptions Of Why People Get Addicted To Smoking x Smoking Status	160
Table 5.26	Perceptions Of When Addiction Happens x Smoking Status	162
Table 5.27	Perceptions Of Consequences Of Smoking Addiction x Smoking Status	168
Table 5.28	Intentions To Try Smoking x Intentions To Take Up Regular Smoking	172
Table 5.29	Intentions To Smoke x School Year	173
Table 5.30	Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	176
Table 5.31	Perceptions Of When Smoking Addiction Happens x Sex	178
Table 5.32	Perceptions Of When Smoking Addiction Happens x School Year	179
Table 5.33	Perceptions Of When Smoking Addiction Happens x Smoking Status	179
Table 5.34	Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	181
Table 5.35	Perceptions Of Addiction Avoidance Strategies x School Year	183
Table 5.36	Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	185
Table 5.37	Reasons For Not Smoking x School Year	188
Table 5.38	Reasons For Not Smoking x Intentions To Try Smoking	191
Table 5.39	Reasons For Not Smoking x Intentions To Take Up Regular Smoking	192
Table 5.40	Reasons For Not Smoking Now Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	193
Table 5.41	Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	196

Table 6.1	Overview Of Secondary School Respondents	201
Table 6.2	Weighting Table	202
Table 6.3	Smoking Status Of Secondary School Respondents	203
Table 6.4	Smoking Status x Sex	204
Table 6.5	Smoking Status x School Year	204
Table 6.6	Smoking Status x School Type	205
Table 6.7	Principal Component Analysis Of Items with Varimax Rotation Of 2 Extracted Factors	209
Table 6.8	Multivariate Test Statistics Of Differences In Perceptions Of Addictiveness For Sex, School Type, School Year And Sex	210
Table 6.9	ANOVA For Perceptions Of Addictiveness x Sex	211
Table 6.10	ANOVA For Perceptions Of Addictiveness x School Year	214
Table 6.11	Perceptions Of Addictive Strength	216
Table 6.12	Multivariate Test Statistics Of Differences In Perceptions Of Addiction Strength For Sex, School Type, School Year And Smoking Status	218
Table 6.13	ANOVA For Perceptions Of Addictive Strength x Sex	219
Table 6.14	ANOVA For Perceptions Of Addictive Strength x Smoking Status	222
Table 6.15	Difficulty In Stopping – Items rated ‘Very Hardest’, ‘Next Hardest’ & ‘Third Hardest’ To stop	225
Table 6.16	Selected Item Rankings For Difficulty In Stopping x Smoking Status	226
Table 6.17	Addiction Ease – Items rated ‘Very Easiest’, ‘Next Easiest’ & ‘Third Easiest’ To Be addicted To	227
Table 6.18	Selected Item Rankings For Ease Of Addiction x School Year	228
Table 6.19	Selected Item Rankings For Ease Of Addiction x School Type	228

Table 6.20	Addiction Danger – Items rated ‘Most Dangerous’, ‘Next Most Dangerous’ & ‘Third Most Dangerous’ To Be addicted To	229
Table 6.21	Selected Item Rankings For Addiction Danger x Sex	230
Table 6.22	Selected Item Rankings For Addiction Danger x School Year	231
Table 6.23	Selected Item Rankings For Addiction Danger x School Type	231
Table 6.24	Selected Item Rankings For Addiction Danger x Smoking Status	232
Table 6.25	Summary Of Main Results – Perceptions Of General Addiction	235
Table 6.26	Summary Of Main Results – Secondary School Students’ Perceptions Of Cigarette Addictiveness x Smoking Status	236
Table 6.27	Perceptions Of Whether Adults & Youths Are Addicted x School Year	239
Table 6.28	Perceptions Of Whether Adults & Youths Are Addicted x School Type	239
Table 6.29	Intentions To Try Smoking x Intentions To Take Up Regular Smoking	258
Table 6.30	Intentions To Continue Smoking x Intentions To Smoke When Grown Up	260
Table 6.31	Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	263
Table 6.32	Perceptions Of When Smoking Addiction Happens x School Year	265
Table 6.33	Perceptions Of When Addiction Happens x Smoking Status	265
Table 6.34	Perceptions Of When Smoking Addiction Happens Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	267

Table 6.35	Addiction Avoidance Strategies Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	270
Table 6.36	Reasons For Not Smoking x School Year	273
Table 6.37	Reasons For Not Smoking x Intentions To Try Smoking	276
Table 6.38	Reasons For Not Smoking x Intentions To Take Up Regular Smoking	276
Table 6.39	Reasons For Not Smoking Now Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	277
Table 6.40	Reasons To Stop Smoking x Sex	280
Table 6.41	Reasons To Stop Smoking x Intentions To Continue Smoking	283
Table 6.42	Reasons To Stop Smoking x Intentions To Smoke When Grown Up	283
Table 6.43	Reasons For Stopping Smoking Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Current Smokers	284
Table 6.44	Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers	286
Table 6.45	Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Current Smokers	287

## LIST OF FIGURES

---

Figure 5.1	Primary School Students' Perceptions Of General Addictiveness: 'Can You Get Addicted To... ?'	119
Figure 5.2	Factor Scree Plot (10 Items)	120
Figure 5.3	Perceptions Of Alcohol Addictiveness x School Year	125
Figure 5.4	Perceptions Of Gambling Addictiveness x School Year	126
Figure 5.5	Perceptions Of Drugs Addictiveness x Sex x School Year	127
Figure 5.6	Primary School Students' Perceptions Of Addictive Strength	129
Figure 5.7	Perceptions Of Alcohol Addictive Strength x School Year	133
Figure 5.8	Perceptions Of Gambling Addictive Strength x School Year	134
Figure 5.9	Primary School Students' Perceptions Of Whether Adult Smokers vs. Young Smokers Are Really Addicted	150
Figure 5.10	Primary School Students' Perceptions Of Why Adults vs. Young People Smoke	152
Figure 5.11	Primary School Students' Perceptions Of Why Adults Smoke x School Year	155
Figure 5.12	Primary School Students' Perceptions Of Why Youths Smoke x School Year	156



Figure 5.13	Primary School Students' Perceptions Of Why People Get Addicted To Smoking	158
Figure 5.14	Primary School Students' Perceptions Of Why People Get Addicted To Smoking x School Year	159
Figure 5.15	Primary School Students' Perceptions Of When Addiction Happens	160
Figure 5.16	Primary School Students' Perceptions Of When Addiction Happens x Sex	161
Figure 5.17	Primary School Students' Perceptions Of When Addiction Happens x School Year	162
Figure 5.18	Primary School Students' Perceptions Of What It Means To Be Addicted To Smoking	164
Figure 5.19	Primary School Students' Perceptions Of Addiction Meanings x School Year	165
Figure 5.20	Primary School Students' Perceptions Of the Single Worst Thing about Being Addicted To Smoking	166
Figure 5.21	Primary School Students' Perceptions Of Addiction Consequences x School Year	167
Figure 5.22	Primary School Never Smokers' Intentions To Smoke	171
Figure 5.23	Primary School Never Smokers' Perceptions Of Trial Smoking: Can You Try Smoking Without Getting Addicted?	174
Figure 5.24	Primary School Never Smokers' Perceptions Of Trial Smoking: Can You Try Smoking without Getting Addicted x School Year	174
Figure 5.25	Primary School Students' Perceptions Of When Addiction Happens	178
Figure 5.26	Primary School Students' Perceptions Of Addiction Avoidance Strategies	182
Figure 5.27	Primary School Never Smokers: Reasons Why They Don't Smoke	187

Figure 6.1	Secondary School Students' Perceptions Of General Addictiveness: 'Can You Get Addicted To...?'	207
Figure 6.2	Perceptions Of Cigarettes Addictiveness x Sex	212
Figure 6.3	Perceptions Of Drugs Addictiveness x Sex	213
Figure 6.4	Perceptions Of Gambling Addictiveness x Sex	213
Figure 6.5	Perceptions Of Chocolates Addictiveness x Sex	214
Figure 6.6	Perceptions Of TV Addictiveness x School Year	215
Figure 6.7	Secondary School Students' Perceptions Of Addictive Strength	217
Figure 6.8	Perceptions Of Alcohol Addictive Strength x Sex	220
Figure 6.9	Perceptions Of Drugs Addictive Strength x Sex	220
Figure 6.10	Perceptions Of Cigarettes Addictive Strength x Sex	221
Figure 6.11	Perceptions Of Gambling Addictive Strength x Sex	221
Figure 6.12	Perceptions Of Video Games Addictive Strength x Sex	222
Figure 6.13	Perceptions Of Alcohol Addictive Strength x Smoking status	223
Figure 6.14	Perceptions Of Chocolates Addictive Strength x Smoking status	224
Figure 6.15	Secondary School Students' Perceptions Of Whether Adult Smokers vs. Young Smokers Are Really Addicted	238
Figure 6.16	Secondary School Students' Perceptions Of Why Adults vs. Young People Smoke	240
Figure 6.17	Secondary School Students' Perceptions Of Why Youths Smoke x School Year	242
Figure 6.18	Secondary School Students' Perceptions Of Why Adults Smoke x Smoking Status	243
Figure 6.19	Secondary School Students' Perceptions Of Why Youths Smoke x Smoking Status	244
Figure 6.20	Secondary School Students' Perceptions Of Why People Get Addicted To Smoking	246
Figure 6.21	Secondary School Students' Perceptions Of When Addiction Happens	247

Figure 6.22	Secondary School Students' Perceptions Of When Addiction Happens x Sex	248
Figure 6.23	Secondary School Students' Perceptions Of When Addiction Happens x School Type	248
Figure 6.24	Secondary School Students' Perceptions Of When Addiction Happens x School Year	249
Figure 6.25	Secondary School Students' Perceptions Of When Addiction Happens x Smoking Status	250
Figure 6.26	Secondary School Students' Perceptions Of What It Means To Be Addicted To Smoking	251
Figure 6.27	Secondary School Students' Perceptions Of the Single Worst Thing about Being Addicted To Smoking	253
Figure 6.28	Secondary School Students' Perceptions Of Addiction Consequences x Smoking Status	254
Figure 6.29	Secondary School Never Smokers' Intentions To Smoke	257
Figure 6.30	Secondary School Current Smokers' Intentions To Smoke	259
Figure 6.31	Secondary School Never Smokers' Perceptions Of Trial Smoking: Can You Try Smoking Without Getting Addicted?	261
Figure 6.32	Secondary School Never Smokers' Perceptions Of Trial Smoking: Can You Try Smoking without Getting Addicted x School Year	261
Figure 6.33	Secondary School Students' Perceptions Of When Addiction Happens	264
Figure 6.34	Secondary School Students' Perceptions Of Addiction Avoidance Strategies	268
Figure 6.35	Secondary School Never Smokers: Reasons Why They Don't Smoke	272
Figure 6.36	Secondary School Current Smokers: Reasons Why They Would Stop Smoking	279

## **JOURNAL ARTICLES AND CONFERENCE PAPERS GENERATED FROM THIS STUDY**

---

Wang, C., Henley, N. & Donovan, R. (2004). Exploring children's conceptions Of smoking addiction. Health Education Research. *Health Education Research*, 19(6), p.626-634.

Henley, N., Wang, C., & Donovan, R. (2002). *Children's conceptions Of smoking addiction onset*. Third WA State Cancer Conference: Cancer: Asking the hard questions?, 29 October, Perth.

# Chapter ONE: INTRODUCTION

---

## 1.1 The research problem

This dissertation reports the results of an empirical study testing the relationship between young people's conceptualisation of smoking addiction and intentions to smoke cigarettes.

This focus was chosen because anti-smoking research and education aimed at preventing youth smoking uptake frequently ignore the issue of addiction which is considered relevant only in relation to adult smoking maintenance and cessation. The consequence of this neglect has created "enormous voids in knowledge and understanding" of youth perceptions of addiction (Wood, 1999, p.45) and a failure to address young people's misconceptions and unrealistic ideas about addiction before smoking uptake.

Empirically, a substantial proportion of young smokers (up to 60%) can be classified as addicted (Colby, Tiffany, Shiffman, & Niaura, 2000). However, less than one-fifth of young smokers accept that they would be unlikely to succeed if they had to quit while a significant percentage (between 50% and 60%) believe that it would be easy or very easy to stop smoking altogether if/when they decide to do so (Goddard, 1990).

For young people, nicotine addiction can develop within days of smoking or just smoking one cigarette every other day (DiFranza et al., 2000) and of those who experiment by smoking 3 to 4 cigarettes, almost 95% go on to become regular smokers with a 30-40 year career span of smoking (Russell, 1990). Generally however, young people see addiction as being relevant only to adult smoking (Rugkasa et al., 2001). Therefore, becoming addicted is often an unforeseen consequence and young smokers are frequently surprised when they find that they cannot give up cigarettes (Moffat & Johnson, 2001). Seventy percent of young smokers regret ever taking up smoking but most are unable to stop smoking in spite of desires to do so (Kessler, 1995). This is worrying because almost all children are adamant that they will never become smokers and those who take up smoking during pre- and early- adolescence do so as opportunistic experimenters (Gilpin et al., 2001).

The goal of the present research was therefore to explore how young people think about smoking addiction and investigate how conceptions of addiction may influence intentions to smoke cigarettes. This association between addiction and the initiation of smoking has not previously been considered in literature on youth tobacco prevention.

## **1.2 Objectives of the study**

The primary objectives of the present study were:

- To systematically explore young people's conceptualisation of smoking addiction; and
- To determine how conceptions of smoking addiction relate to young people's intentions to smoke cigarettes.

In relation to the stated objectives, the goal was to explore young people's idiosyncratic perceptions of smoking addiction, rather than the extent or factual

accuracy of their knowledge on the subject. Therefore, the study focuses on subjective conceptions or conceptualisations (the sum of an individual's ideas, beliefs and understanding).

## **1.3 Methodology**

The present research utilised a two stage dual methodology design, combining both qualitative and quantitative methods in the gathering and analysing of data. In stage one, qualitative in-depth interviews with primary and secondary school students explored young people's conceptualisation of smoking addiction. In stage two, a confirmatory quantitative survey of students explored the relationship between conceptualisations of smoking addiction and young people's intentions to smoke cigarettes.

## **1.4 Significance of the study**

Even though smoking addiction is a major health problem for both adults and young people, addiction is generally considered relevant only to adult smoking maintenance and cessation research. The present study highlights that perceptions of smoking addiction are related to young people's intentions to smoke cigarettes and, that consideration may need to be given to including addiction concepts in primary prevention efforts targeted at youth populations.

## **1.5 Original contribution of the study**

The present study represents the first systematic exploration of young people's conceptualisation of smoking addiction and provides an understanding of how perceptions of addiction might influence smoking-related attitudes and intentions. In practical terms, this knowledge highlights the importance of including addiction concepts in social marketing and health promotion strategies to prevent the uptake of youth smoking.

## **1.6 Terminology**

The terms ‘young people’ and ‘youth’ are used interchangeably in the present work to refer generally to persons aged 17 years and under; ‘children’ refers to persons 12 years and under; and ‘adolescents’ refers to persons in their teenage years (between age 13 and 17).

## **1.7 Thesis Outline**

This thesis is presented in seven chapters and is structured as follows:

Chapter one introduces the present research. It provides an overview of the study problem and a rationale for the current investigation. The chapter also specifies study objectives, significance, and originality, and briefly outlines the methods used in attaining the study’s objectives.

Chapter two presents a review of relevant literature in the areas of youth smoking, smoking addiction and health behaviour.

Chapter three describes the initial exploratory study into young people’s conceptualisation of smoking addiction. It outlines study objectives together with the method used in this qualitative investigation. The chapter also presents key findings, a discussion of their significance and limitations of the study.

Chapters four, five and six relate to the main study into young people’s conceptualisation of smoking addiction. Chapter four describes the quantitative methodology used. It details the theoretical framework that underpins the main study and presents hypotheses to be tested, methods of analyses and the study’s limitations. Results of the main study are presented in two parts: chapter five highlights key findings together with outcomes of hypotheses testing for data from primary school students; chapter six provides results from secondary school student data.



Finally, chapter seven discusses the results and draws upon the literature on youth smoking and other relevant knowledge to explain key findings. Limitations of the present work are also presented here. The chapter concludes with implications of study findings for social marketing practitioners in the area of youth tobacco control and suggestions for related future research.

## **Chapter TWO: SMOKING PREVALENCE, PREDICTORS AND ADDICTION**

---

This chapter presents a brief outline of the extent of youth smoking prevalence both globally and within Australia, and reviews the literature in relation to the possible reasons that lead young people to take up cigarette smoking. The chapter also discusses smoking addiction (what is it and how does it happen?) and examines available research in the area of young people's perceptions of this addiction.

### **2.1 Smoking prevalence**

#### **2.1.1 Introduction**

Globally, about 1300 million people smoke cigarettes or other tobacco products (Thun & Costa, 2003). Smoking is the second major cause of death and the fourth major risk factor for disease in the world (World Health Organization, 2005a). It currently kills five million adults each year (equivalent to one in ten adult-deaths worldwide) and half of all current smokers (650 million) will eventually die as a result of their addiction (World Health Organization, 2005b). Smoking deaths generally lag tobacco consumption trends by 30 to 60 years and hence, a critical indicator of future mortality is the present rate of smoking uptake by young people (Thun & Costa, 2003).

Youth smoking rates vary significantly by regions of the world and between-country comparisons are difficult as a result of differences in age definitions of 'youth', differences in consumption definitions of 'smoker' and a lack of reliable data particularly from developing nations. Broadly however, youth smoking prevalence is lower in the Northern than Southern Americas (e.g. 18.4% Canada vs. 23.1% US vs. 38.3% Chile) (Selin, Martin, Peruga, & WHO Regional Office for the Americas, 2003). In Europe, between 27% to 30% of young people in Eastern/Western Europe and about 42% of those in the Russian Federation smoke (WHO Regional Office for Europe, 2003). In Africa, youth smoking is typically high and rising significantly (e.g. 24.3% South Africa and 58% Uganda) (Oluwafemi & Environmental Rights Action/Friends of the Earth Nigeria, 2003). In the Asia-Pacific region youth smoking is possibly the highest in the world; parts of India and islands in the Pacific having rates of over 60% (David & WHO Western Pacific Regional Office, 2003; Mackay & Eriksen, 2002).

### **2.1.2 Australian youth smoking prevalence**

The mean age that most Australians first start smoking is 15.9 years and currently, there are about 180,000 adolescents in Australia who smoke cigarettes on a daily basis (Australia Institute of Health and Welfare, 2005). Smoking rates for different age groups of young Australians are presented in Table 2.1.

Overall, 8.1% of young people aged 12 to 19 years smoke cigarettes on a daily basis, 2.1% smoke cigarettes weekly or less than weekly and 2.6% have given up smoking (ex-smokers). The vast majority (87.1%) of adolescents can generally be categorised as 'never smokers'. Comparisons by age group show significant variations in the prevalence of smoking. Smoking activities generally increase with age in this age group and the greatest rates of smoking are seen in adolescents aged 18 to 19 years. Almost 17% of young people in this age group smoke cigarettes daily compared to 10.9% of 16-17 year olds and 2.3% of 12-15 year olds. Occasional smoking (weekly or less than weekly) is also highest in the oldest age group (3.9%) compared to that in the 16-17 group (3.1%) and 12-15 year old group (0.8%).

*Table 2.1  
Smoking Status of Young People in Australia*

Smoking Status	Age Group				
	12-15	16-17	18-19	12-19	12+ <sup>3</sup>
<b>Boys</b>					
Daily	2.0	7.5	17.5	7.3	18.0
Weekly	0.6	2.1	2.6	1.4	2.0
Less than weekly	0.4	2.0	1.2	1.0	1.9
Ex-smoker <sup>1</sup>	1.5	2.9	5.4	2.9	28.3
Never smoked <sup>2</sup>	95.5	85.5	73.3	87.4	49.9
<b>Girls</b>					
Daily	2.6	14.5	16.3	9.1	15.8
Weekly	0.1	1.3	2.3	1.0	1.2
Less than weekly	0.4	0.7	1.7	0.8	1.3
Ex-smoker <sup>1</sup>	0.9	2.1	5.6	2.4	22.9
Never smoked <sup>2</sup>	95.9	81.4	74.0	86.7	58.8
<b>All</b>					
Daily	2.3	10.9	16.9	8.1	16.9
Weekly	0.4	1.7	2.5	1.2	1.6
Less than weekly	0.4	1.4	1.4	0.9	1.6
Ex-smoker <sup>1</sup>	1.2	2.6	5.5	2.6	25.5
Never smoked <sup>2</sup>	95.7	83.5	73.7	87.1	54.4

<sup>1</sup> Smoked at least 100 cigarettes (or equivalent) in their lifetime and no longer smoking

<sup>2</sup> Never smoked 100 cigarettes in their lifetime

<sup>3</sup> All smokers including adults

(Australia Institute of Health and Welfare, 2005)

Comparisons by gender show that daily smoking is greater for girls (9.1%) than boys (7.3%). In particular, daily smoking for girls is almost twice that for boys in the 16-17 year age group (14.5% vs. 7.5% respectively).

Table 2.2 shows the mean number of cigarettes smoked by young Australians in different age groups. On average, adolescents smoke 26 cigarettes per week. However, consumption increases substantially with age; weekly rates are highest for young people aged 16 and 17 years (34% and 37% respectively) and lowest for those aged 12 and 13 (12% respectively).

Comparisons by gender show that boys generally smoke slightly more than girls (overall 27 cigarettes per week vs. 26) except in the 17 year age group where girls smoke 39 cigarettes per week compared to boys who smoke 34 (White & Hayman, 2004).

*Table 2.2  
Mean Number of Cigarettes Smoked Per Week by Young People in Australia*

	Age						
	12	13	14	15	16	17	All
Boys	13	12	22	24	35	34	27
Girls	10	12	18	22	33	39	26
All	12	12	20	23	34	37	26

(White & Hayman, 2004)

## 2.2 Smoking predictors

### 2.2.1 Introduction

Prevention has formed the crux of efforts to control and reduce the total impact of smoking because of the recognised difficulty in modifying behaviour once smoking has been established (Chassin, Presson, Sherman, & Edwards, 1990). As smoking is predominantly initiated during adolescence, the optimal strategy has been to prevent young people from using tobacco (Center for Chronic Disease Prevention and Health Promotion CDC, 1998). Mortality rates for smokers who start smoking at age 15 are 50% higher compared to those who start after age 20 and point generally to the importance of a youth-targeted preventative approach (Flay, d'Avernas, Best, Kersell, & Ryan, 1983). In addition, since beliefs about smoking (or not smoking) are typically well established by late adolescence (Pederson, 1986) and very few people actually initiate smoking once past their teenage years (Lantz et al., 2000), youth prevention is generally thought to be the most effective way of preventing the recruitment of new smokers and reducing the overall number of future adult smokers (Owen & Halford, 1988).

A key platform of prevention has been the investigation into causes of young people's smoking uptake. Identifying factors relating to the initiation or onset of smoking can lead to effective intervention strategies targeted at young people to stop the uptake of smoking (Ney & Gale, 1989). To date, a large number of factors relating to why young people take up smoking have been identified. However, smoking behaviour is a complex phenomenon and a single smoking episode may be a function of one or more factors that change with the smoking context (Baker, Brandon, & Chassin, 2004). It has become useful to conceptualise

smoking in terms of a developmental framework that divides the ontogeny of smoking into stages.

Broadly, the development of smoking can be seen in terms of stages of smoking acquisition and stages of cessation (DiClemente et al., 1991; Flay et al., 1983; Leventhal & Cleary, 1980; Pallonen, 1998; Pallonen, Prochaska, Velicer, Prokhorov, & Smith, 1998; Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992). The process of smoking adoption consists of four stages: preparation, initiation, becoming (a smoker) and maintenance (of smoking). The process of smoking cessation consists of a further four stages: dissatisfaction, deciding to stop, adoption and maintenance of cessation.

Across the stages, factors that influence smoking change in relevance and importance. For example, smoking initiation is usually exploratory in nature and therefore, young people's motivations for starting to smoke are typically different from reasons for continuing to smoke; in turn, these are again different from factors that may motivate smoking cessation (Alexander et al., 1983; Ary & Biglan, 1988; Chassin, Presson, Sherman, Corty, & Olshavsky, 1984; Flay et al., 1983; Horn, 1979; Pederson & Lefoce, 1986; Skinner, Massey, Krohn, & Lauer, 1985). With this complexity of change over the entire smoking cycle, it becomes necessary to study each stage and its attendant factors separately (Ary & Biglan, 1988; Hill, 1990; Leventhal & Cleary, 1980).

In the current work, the focus was on the stage of smoking acquisition and on factors associated with young people's decisions to start smoking cigarettes (i.e. smoking initiation or smoking uptake).

### **2.2.2 Factors relating to smoking initiation**

The number of factors identified with smoking initiation is large and varied: peer and familial smoking (Pederson & Lefoce, 1986), socio-economic status (Borland & Rudolph, 1975), advertising (Armstrong, Klerk, Shean, Dunn, & Dolin, 1990; MacFadyen, Hastings, & MacKintosh, 2001), personality (Eysenck, 1965, 1980),

self-esteem (Conrad, Flay, & Hill, 1992), risk-taking (Jessor, Turbin, & Costa, 1998), smoking-related school policies (Pinilla, Gonzalez, Barber, & Santana, 2002), academic performance (Bewley & Bland, 1977) and genetics (Audrain-McGovern, Lerman, Wileyto, Rodriguez, & Shiels, 2004; Eysenck, 1980; Sabol et al., 1999).

Rather than causes of smoking, these are commonly identified as predictors or prospective factors (Hill, 1990). This is because the nature of research methods generally provides indications of statistical associations for particular variables and smoking behaviour rather than proof of causation (Wood, 1999). This applies equally to methods that are cross-sectional and longitudinal. Hill and colleagues stated that even though longitudinal methods are useful for determining the order in which events occur, this does not naturally lead to a presumption of causation (Conrad et al., 1992; Hill, 1990). This is because it is not generally possible to predict and control for all possible confounding variables and hence, to determine with certainty that an apparent relationship is proven (Yaffee, 2003).

Tyas and Pederson's (1998) taxonomy of factors related to the aetiology of smoking – modified from the US Surgeon General's Report 1994 on youth smoking (US Department of Health and Human Services, 1994) – was used in the present thesis. This groups factors of smoking initiation into socio-demographic, environmental, behavioural and personal categories. The advantage of this taxonomy is that the categories are generally self-evident, mutually exclusive and exhaustive.

Table 2.3 presents a synthesis of the main factors of youth smoking initiation. The factors can be conceptualised as antecedent to smoking. Over numerous studies, they have been shown to correlate with subsequent smoking in youth populations, that is, the factors were found significantly more often in young people who took up smoking than among those who did not (Higgins & Conner, 2003).

Since most studies typically segregate and investigate only individual or small subsets of factors (Amonini, 2001), the following review discusses the factors individually. Overall, however, confidence in the ability to predict adolescent smoking behaviours relies on the balance of multiple factors being considered together (Wills, 2004). In combination, predictive factors can have a multiplicative effect and in any given situation, the overall risk of smoking uptake becomes exacerbated as more factors are present (Hawkins, Catalano, & Miller, 1992).

*Table 2.3  
Factors Predicting Youth Smoking Initiation*

<b>Socio-demographic</b>	<b>Environmental</b>	<b>Behavioural</b>	<b>Personal</b>
Socio-economic status	Parent and peer smoking	School-related factors	Personality
Age/School Year	Access to cigarettes	Risk-taking Behaviour	Self-esteem
Gender	Cigarette advertising		Knowledge, attitudes & beliefs
Ethnicity			Intentions to smoke

### ***2.2.2.1 Socio-demographic factors***

Socio-demographic factors such as socio-economic status, age (or grade or school year), gender and ethnicity generally describe and distinguish individuals.

#### *Socio-Economic Status (SES)*

Socio-economic status or SES is a composite index comprising an individual's economic status (measured by income), social status (measured by level of education) and work status (measured by occupation or profession) (Adler et al., 1994). In the context of youth smoking, parental SES is a known predictor negatively linked with smoking, that is, the incidence of adolescent smoking is generally higher where parents have lower SES, and lower where parental SES is high (Borland & Rudolph, 1975; Gordon, 1986; Hu, Lin, & Keeler, 1998; Langille, Curtis, Hughes, & Murphy, 2003; Pederson, Koval, & O'Connor, 1997; Pederson & Lefcoe, 1985; Purcell, Lloyd, Hards, Alexander, & Leeder, 1979).



This notwithstanding, some studies have found the reverse effect between SES and smoking when mediated by gender, in particular, the incidence of smoking in girls appears in some cases to increase with higher parental SES (Flay et al., 1983; Johnson et al., 2004). Flay et al. (1983) suggested that this effect may be due to changing sex roles and to the different motivations for girls to take up smoking (discussed further below).

Overall however, the evidence has generally shown that the relationship between parental SES and youth smoking is an inverse or negative one. In at least two major reviews of studies predicting the onset of smoking in young people (Conrad et al., 1992; Tyas & Pederson, 1998), strong and consistent support was found for this association. In a recent multivariate study that modelled the relative effects of parental SES on youth smoking whilst controlling for a significant number of other variables (e.g. age, gender, ethnicity, parental and peer smoking), both low parental education and low family income level were found to significantly and independently predict higher levels of youth smoking (Soteriades & DiFranza, 2003). The magnitude of this inverse relationship was sizable and young people from less advantaged families were on average, at least 30% more likely to be smokers than those from more privileged backgrounds.

The pathways through which young people's smoking behaviour is influenced by parental SES are generally unclear. Soteriades and DiFranza (2003) proposed that perhaps high parental SES is associated with better role modelling and better life opportunities. With respect to role modelling, adolescent smoking is positively associated with parental smoking which tends to be considerably lower in adults with higher education levels and higher grades of employment (and vice versa) (Adler et al., 1994). Having better life opportunities arguably increases the range of 'conventional' options available to young people and reduces the attractiveness of 'deviant' options such as smoking. In both situations, youth smoking will be low.

In contrast, an early investigation showed that the association of low parental SES with increased youth smoking is independent of whether or not parents smoked (Royal College of Physicians, 1983). Thus, for low SES, Soteriades et al. (2003, p.1159) suggested that this could be a “proxy measure” for (1) generally poorer family attitudes toward long term health and well-being; (2) lower enforcement of smoking bans in the type of schools typically attended; and (3) locus of control where disadvantaged young people with fewer life opportunities are more likely to seek immediate gratification from smoking.

#### *Age/School Year*

As stated earlier, the majority of smoking initiation takes place sometime during adolescence. During adolescence, young people’s smoking initiation (and general smoking prevalence) is a function of increasing age or school year (Tyas & Pederson, 1998). Chen and Kandel (1995, p.44) found that smoking uptake generally peaks at age 16, and that after age 20 the risks of smoking initiation “are mostly over”. In Australia, for example, Hill, White and Effendi (2002) reported that about three quarters of 12 year olds would generally be never smokers. However, this proportion of never smokers steadily decreases as young people mature: approximately 60% at 13 years; 45% at 14 years; 40% at 15 years; 35% at 16 years. By age 17, only about one quarter of young people would still be categorised as never smokers while about three quarters would have either experimented with smoking or were regular smokers of cigarettes (Hill, White, & Effendi, 2002).

Studies of smoking uptake across eleven European countries (viz. Finland, Hungary, the Netherlands, Norway, Scotland, Wales, Austria, Switzerland, Spain, Sweden and Belgium), (van Reek, Adriaanse, & Aaro, 1990), in New Zealand (Ministry of Health, 2003), the US (Faulkner, Farrelly, & Hersey, 2000), the UK (National Center for Social Research & National Foundation for Educational Research, 2004) and in Canada (Pederson & Lefcoe, 1982; Pederson & Lefcoe, 1985) have shown similarly that smoking is a function of increasing age or school year. A broader study into youth smoking by the WHO reported similar

associations between smoking uptake and age for twenty-eight predominantly developed countries (World Health Organization, 2000).

It has been suggested that young people's first smoking experience typically occurs during stages of social and/or psychological transitions. For instance, young people may take up smoking when changing from primary to secondary school to manage anxiety and emotional stress during the changeover or to achieve social acceptance in their new environment (Flay et al., 1983). In the transition from childhood to adulthood, young people may also take up smoking as a means of asserting their individuation from parents or as a symbol of achieving adult status (DuRant, Smith, Kreiter, & Krowchuk, 1999). This "eagerness to be grown up" or "anticipation of adulthood" is generally an important factor in youth smoking uptake (Royal College of Physicians, 1983, p.56).

### *Gender*

In Australia, as in most developed western societies, smoking prevalence has traditionally been higher for boys than girls. In a review of over 100 international reports of longitudinal studies on youth smoking, being male was consistently a positive and significant predictor of adolescents most at risk of becoming and remaining a smoker (Derzon & Lipsey, 1999). However, Tyas and Pederson (1998) noted in their review of the literature that conflicting accounts began emerging in the 1980s with some studies showing no differences in gender prevalence, and others showing higher prevalence for girls than boys.

Initially, inconsistencies in reports were attributed to differences in study methods and to sample or cohort characteristics. However, it has since been recognised that smoking habits have evolved and that male and female patterns of smoking have converged (Schiaffino et al., 2003). Currently, smoking rates for girls have equalled, and in some cases even exceeded the rates for boys. This has been observed in countries such as Australia, New Zealand, the UK, Canada, Denmark and Germany where smoking prevalence is now greater in adolescent girls relative

to boys (Ministry of Health, 2003; National Center for Social Research & National Foundation for Educational Research, 2004; QUIT Victoria, 2002; Reeder, Williams, & McGee, 1999; World Health Organization, 1998). In the US where boys in general still smoke more than girls, smoking rates for girls have been rising sharply in the face of an overall declining trend in smoking rates (Moffat & Johnson, 2001).

Other gender-related changes have also been observed in young people's smoking patterns. For instance, in addition to increases in rates of prevalence, the age of smoking onset in girls is generally lower than for boys (McNeill et al., 1988; Pulkkinen, 1982). While the frequency of smoking and the number of cigarettes smoked for boys have generally been static or else decreasing, rates for girls appear in many cases to be rising (Pinilla et al., 2002; QUIT Victoria, 2004). Perhaps as a result of such increases in smoking, girls are generally twice as likely to progress from occasional to regular smoker and twice less likely to stop or quit smoking than boys (Ariza-Cardenal & Nebot-Adell, 2002).

Interestingly, these changes appear to be specific to smoking. Gender comparisons in relation to most other substance use (both licit and illicit drugs) show that being male is generally a greater risk factor (Kozicki, 1986; Welte & Barnes, 1987; Yamaguchi & Kandel, 1984a). This has led Welte and Barnes (1987, p.338) to label this phenomenon the "feminisation of smoking".

Although being female has been identified as a predictor of youth smoking initiation, the reasons underlying this are generally unclear. In a study of the comparative strength of factors associated with the adoption of smoking by young people, 'being a girl' exerted a strong independent effect on smoking propensity that the researchers could not attribute to differences in any of the other factors identified (e.g. having parents and siblings who smoke) (Goddard, 1990). In another report, being a girl was similarly found to be a significant independent factor that also did not produce interactions with any of the other factors in the

study (e.g. smoking behaviours and attitudes of family, teachers and peer group) (McNeill et al., 1988).

In gender comparisons of smoking, Pederson (1986) found that internal influences (e.g. attitudes) were related to smoking behaviours in girls while external influences (e.g. peer group pressure) generally correlated better with smoking in boys. Clayton (1991) postulated that perhaps the mechanisms involved in smoking adoption by girls may be related more to internal or psychological traits and states than to external or environmental influences. Both would explain the strong independent effect for being female and the lack of interaction with predominantly external factors in the above studies. Kellner (2000) found explicit associations for smoking and young women's perceptions of self-presentation (in particular, perceptions of body image, self-conception and how one's self-image is projected to others), which links the likelihood of smoking, being female and internal or psychological correlates (these correlates are discussed later in the current chapter).

### *Ethnicity*

In Australia, it is generally well recognised that Indigenous people (i.e. Aboriginals and Torres Straits Islanders) are significantly more likely than non-Indigenous people to smoke cigarettes. The national rate of smoking prevalence for adult indigenous males is 60% and for females 43% (Winstanley, Woodward, & Walker, 1995) although in some communities, rates are as high as 83% among men and 73% among women (Briggs, Lindorff, & Ivers, 2003). In contrast, non-indigenous rates are around 20% (Australia Institute of Health and Welfare, 2003). Characteristically, indigenous persons also smoke more cigarettes per week (125 cigarettes for indigenous vs. 108 for others) and are less likely than non-indigenous smokers to stop smoking (Winstanley et al., 1995).

Although there are few studies available on indigenous youth smoking, prevalence rates of smoking have been estimated to be about 1.9 times higher for Aboriginal adolescents (adjusted for age, sex and other demographic variables)

compared with non-Aboriginal adolescents (Forero, Bauman, Chen, & Flaherty, 1999). In addition, Aboriginal adolescents typically start smoking at a younger age and they also typically smoke more frequently than do non-Aboriginal youths (Gray, Morfitt, Ryan, & Williams, 1997).

In other countries with indigenous populations, studies that have compared the prevalence of youth smoking by ethnicity typically report significantly higher rates of smoking for indigenous than non-indigenous groups. For example, the New Zealand Maoris (Ministry of Health, 2003; Reeder et al., 1999; Scragg, Laugesen, & Robinson, 2003), the North American Indians and Alaskan Natives (Baker et al., 2004), and the Canadian Aboriginals (Johnson et al., 2004) all smoke disproportionately more than non-indigenous youth in their respective countries.

Investigations into smoking in immigrant populations in Australia have shown that substantial variations exist in the prevalence of smoking as a result of differences in cultural norms ‘imported’ from the immigrant’s home country (Trotter, 1998). For example, smoking rates for men of Vietnamese (53%), Greek (44%), Arabic (43%), Italian (33%) and Chinese (26%) ethnicity are significantly higher than for non-ethnic Australian males (27%) (Tang et al., 1998). These rates however, are not mirrored in ethnic adolescent populations which generally have considerably lower rates of smoking, up to two times lower, when compared to Australian non-ethnic youths (Chen et al., 2000).

#### ***2.2.2.2 Environmental factors***

The study of environmental predictors principally includes investigations into social influences (in particular, of parents and peers but also potentially of significant ‘others’) and macro-level determinants such as access to tobacco products, prevalence of tobacco advertising, issues of price and taxation as possible factors in young people’s uptake of cigarette smoking.

### *Parental and Peer Smoking*

Numerous studies have investigated youth tobacco use from a social learning perspective by focusing on the influence of parents and peers. Central to the social learning approach is the idea that young people are influenced by the normative beliefs, values and behaviours of members of their social group (Jackson, Henriksen, Dickinson, & Levine, 1997). Through operant (instrumental) conditioning and imitation, young people's personal beliefs, values and behaviours will tend to reflect those of parents and peers (and potentially also that of other influential individuals) (Kandel, 1980).

This occurs because adolescence is a complex and confusing period. As young people attempt to create or form their own identity and self-image, parents, peers and other influential agents provide "significant social comparisons" which allow young people to ascertain – and therefore internalise and replicate – behaviour that is expected and appropriate (Maxwell, 2002, p.267). In relation to tobacco use, the social learning approach predicts that young people's smoking behaviours will mirror the attitudes and behaviours of parents and peers. Parents and peers therefore can be risk or protective factors in relation to young people's smoking.

Kozicki (1986, p.3) stated that "the single most significant influence on the development of a human organism is the parents". Without a doubt, parents play a fundamental role in the growth and development of children and it reasonably follows that they are a compelling influence on whether or not young people decide to smoke (Oei & Fea, 1987). The effect of parental influence on youth smoking is exerted in three broad ways: (i) through parental smoking (modelling); (ii) through parental attitudes toward smoking; and (iii) through parental child-rearing practices or parenting style.

With respect to modelling effects, parental smoking allows young people to observe firsthand, smoking behaviour in the home. This exposure has been found to positively associate with smoking uptake in young people in over 70% of

studies investigating the potential effects of parental modelling on smoking (Conrad et al., 1992).

In comparisons of the effect of parental smoking on youth smoking, less than 10% of young smokers come from families in which neither parent is a current smoker (Jackson et al., 1997). In contrast, it is estimated that up to 75% of young smokers come from families in which at least one parent currently smokes (Males, 1995). These comparisons are especially accentuated in the case of young people who are heavy smokers. In families where both parents are smokers, the proportion of boys who are heavy smokers is twice as high, and in girls, more than seven times as high as families in which both parents are non-smokers (Oei & Fea, 1987). In addition, there is some evidence to suggest that parental smoking may be associated with early onset smoking in young people (Fergusson, Lynskey, & Horwood, 1995).

The second effect of parental influence is exerted through attitudes toward smoking – in particular, through anti-smoking socialisation. How parents deal with their children's smoking, for example, explicitly forbidding smoking at home, openly talking about the risks of smoking, overtly expressing disapproval and punishing children who are caught smoking, inversely determines whether young people will take up smoking (Armstrong et al., 1990; Chassin, Presson, & Sherman, 1984; Eiser, Morgan, Gammage, & Gray, 1989; Engels, Knibbe, & Drop, 1999; Gordon, 1986; Jackson et al., 1997; Lo, Blaze-Temple, Binns, & Ovenden, 1993; Newman & Ward, 1989; Pederson et al., 1997).

Other specific examples such as parents requesting to sit in non-smoking sections of restaurants and other public places, and asking smokers not to smoke in their presence also inversely influences smoking uptake in young people (Anderson, Leroux, Bricker, Rajan, & Peterson, 2004). Such anti-smoking socialisation has been found to associate with lower rates of youth smoking even when one or both parents are themselves smokers (Anderson et al., 2004; Eiser et al., 1989; Jackson & Henriksen, 1997; Newman & Ward, 1989).



The third way that parents influence youth smoking is through child-rearing practices or parenting style. For instance, those practices or styles characterised by openness in communication have been found to inversely relate to tobacco and other substance use in young people (Kafka & London, 1991). This association has been explained by Kafka and London (1991) in two ways: first, parents are moral authorities – having open lines of communication between parents and young people produces an inhibiting effect with respect to problem behaviours such as tobacco and other substance use. Second, openness in communication indicates to young people that they are listened to and cared about which reduces the likelihood of boredom and emptiness that may lead young people to experiment with or take up smoking. This was clearly shown in Shedler and Block's (1990) thirteen year longitudinal study of young people from preschool to age 18 years to determine the antecedents of adolescent drug use (included drugs: marijuana, inhalants, cocaine, hallucinogens, barbiturates, amphetamines, tranquilisers, heroin and 'others'). Shedler and Block (1990) found that frequent drug users had parents (particularly mothers) who were cold, hostile, unresponsive or insensitive to their children's needs, critical, unsupportive, lacking in pride and under-protective of their children.

In contrast to open and communicative parenting styles, authoritarian parenting styles have been found to positively associate with an increased likelihood of tobacco as well as other substance use/abuse (Kozicki, 1986; Tyas & Pederson, 1998). This general increase in tobacco and other substance use may reflect a rebellion motive against an authoritarian parenting regime (Chassin, Presson, Sherman, Montello, & McGrew, 1986).

Broadly, parental styles are fundamental to the development of personalities including the development of behavioural self-regulation, interpersonal skills, a positive self-image, independence and other personal and social competencies (Jackson et al., 1997). Young people lacking these competencies are more likely to develop problem behaviours (e.g. social delinquency) and resort to substance use (e.g. alcohol, tobacco and drugs) (Engels et al., 1999; Jackson et al., 1997).

'Peers' define a broad range of influential agents and include "classmates, friends, best friends, opposite or same sex friends, and boyfriends or girlfriends" (Tyas & Pederson, 1998, p.413). For young people, peer influence has consistently been shown to relate to, not just youth smoking but to most other licit and illicit substance use (Iannotti, Bush, & Weinfurt, 1996). In reviews of the literature – for example: Conrad et al. (1992) and Hill (1990) – between 85% to 90% of studies investigating peer influence have found strong associations between peer smoking and smoking in young people. The consequence of these associations has been that the cause of youth smoking is typically attributed to adolescent peers (Eiser et al., 1989; Norton, Lindrooth, & Ennett, 1998; West & Michell, 1999). In fact, Kandel (1980) stated that this was the most reproduced conclusion, not just in youth smoking research, but in adolescent drug research generally.

Peer influence has validity because of the nature of adolescent friendships. The number of friends that young people have generally increases during their teen years, reaches a maximum sometime during mid-adolescence and then declines thereafter (West & Michell, 1999). Friendships increase in stability through this period and friend choices become more discriminating, change less frequently and evolve into small, more intimate groups or cliques (West & Michell, 1999). Because of this development, it is widely accepted that young people "are particularly susceptible to peer influence" (Maxwell, 2002, p.268). This is especially true in the problem behaviour literature where substance use or abuse behaviour is seen as learned behaviour (Quine & Stephenson, 1990) and associating with "deviant peers" is seen as the reason young people engage in "diverse problem behaviours" (Ary et al., 1999, p.148).

Research findings appear to support this position in youth smoking. For instance, more than 50% of young people smoke their first cigarette with friends compared to less than 10% who have their initiation alone (Bewley & Bland, 1977; Bewley, Bland, & Harris, 1974). During this first experience, boys are generally encouraged by other boys while girls are typically encouraged by other girls (Palmer, 1970). More than 70% of boys are given their first cigarettes by peers

(Bewley et al., 1974) and overall, as the frequency that cigarettes are offered by peers increases, so too does the uptake of smoking by young people (Ary & Biglan, 1988; Eckhardt, Woodruff, & Elder, 1994). In later smoking, simply being in the company of other smokers or else being subjected to overt pressures from peers increases young people's smoking regularity (Britt & Jachym, 1996; Buller et al., 2003).

From these examples, it is possible to identify at least two types of influence in operation – one is facilitative (i.e. works to promote conformity to peer behaviour) while the other is coercive (i.e. works to inhibit non-conformity) (West & Michell, 1999). Facilitative peer influence can be seen as 'soft' (but powerful) pressures that include encouragement, exhortation, and offers and rewards to young people to replicate peer behaviour; coercive peer influence on the other hand, is explicit pressure to conform and includes teasing, taunting, bullying and the threat of exclusion (West & Michell, 1999).

In addition to the above pressures which are overt, peer influence also operates indirectly through the shaping of norms, attitudes and values, to effect congruence in behavioural patterns (Bauman & Ennett, 1996). Young people's perceptions of normal, acceptable and important behaviour are shaped by their observation of peer norms (West & Michell, 1999). This has an effect on young people as they learn and assign these norms to themselves, and alter their behaviour so that it becomes normative (Dielman, Butchart, Shope, & Miller, 1990-1991; Schofield, Pattison, Hill, & Borland, 2001). Iannotti, Bush and Wienfurt (1996) alternatively suggested that peer norms influence behaviours by providing a justification or rationale for young people's own behaviours.

Inevitably, given the influence of both parents and peers on youth smoking behaviour, questions of which is the stronger influence would arise. In reviews of the literature, the impact of parental influence on youth smoking has not generally been as consistently positive when compared to the effects of peer influence. For example, Hill (1990) reported that almost 90% of studies on peer influence

supported a relationship between peer and youth smoking while less than 60% of studies supported a relationship for parental influence. Similarly and as reported above, Conrad et al. (1992) found support for parental influence 70% of the time but over 85% of the time for peer influence in their review of the literature.

In addition to the relatively smaller percentage of supporting studies, the strength of parental influence in relation to youth smoking has also been found to be comparatively weaker. In Derzon and Lipsey's (1999) comparisons of the magnitude of effect for factors predicting smoking initiation in young people, size effect for peer influence was approximately two times that of parental influence. This difference was similar to that produced in Barnea, Teichman and Rahav's (1992) comparison of parental and peer effects. Additionally, Levitt and Edwards (1970) found that peer (best friend and most friends) smoking predicted youth smoking in 45% of cases while mother's smoking (no effect for father's smoking) predicted less than 1%.

In spite of this evidence, Baker, Brandon and Chassin (2004, p.470) suggested that perhaps issues of methodology may have masked the true impact of parental influence in these studies. Their review indicated instead that parental influence is a "powerful risk factor" especially predicting serious youth smoking characterised by "early onset, rapid escalation to heavy levels and persistence over time". In relation to issues of methodology, Kandel (1996) found that where parental influence on peer selection is overlooked, this has the effect of overstating peer influence by five times .

Also focusing on issues of methodology, De Vries (2003) found significant differences in the association between parental and peer smoking, and youth smoking for cross-sectional and longitudinal methods. Based on cross-sectional analysis, friends' ( $\beta = 0.36$ ) and best friend's ( $\beta = 0.25$ ) smoking were the factors most strongly associated with youth smoking when compared to father's ( $\beta = 0.04$ ) and mother's ( $\beta = 0.07$ ) smoking. Longitudinal data however, showed that the predictive power between parental and peer smoking on youth smoking uptake

was not significantly different [best friend's smoking ( $\beta = 0.025$ ); friends' smoking (0.081); father's smoking ( $\beta = 0.043$ ); mother's smoking ( $\beta = 0.065$ )]. On the basis of these findings, De Vries (2003) concluded that the significance of peer smoking has generally been over-estimated while that for parental smoking may have been under-estimated.

Also in spite of the evidence, Males (1995) disputed that peers could be a more significant influence than parents in relation to youth smoking. In his study of 10 to 15 year old school students, more than 90% did not smoke and only 3% stated an intention to smoke in the future. Males (1995) argued that the influence of peers could not be as strong as generally believed especially given that exposure to parental smoking precedes, for many years, the exposure to such low levels of peer involvement with smoking.

For different reasons, a number of major works have similarly contended that peer influence may be significantly less important than generally accepted (Bauman & Ennett, 1996; Engels et al., 1999; Iannotti & Bush, 1992; Iannotti et al., 1996; Urberg, 1999; West & Michell, 1999). Urberg (1999, p.1) described the "stereotypical" perception of peer influence as one where a "good teen" is offered cigarettes and pressured to smoke by a "bad teen". Empirically, this influence or pressure to smoke is measured by the association between young people's smoking behaviour and their reports of tobacco use by friends (peers) (Ary & Biglan, 1988; de Vries, Engels, Kremers, Wetzels, & Mudde, 2003; Derzon & Lipsey, 1999; Krosnick & Judd, 1982; Lo et al., 1993; Maxwell, 2002; Williams & Covington, 1997). Where associations are positive, that is, where smoking habits between young people and their peers are found to be similar, then the attribution is made that peers are the 'cause' of smoking in young people (Urberg, 1999).

As noted above, the vast majority of reviews of the literature consistently show a strong association between peer smoking and smoking in young people. Such studies, however, ignore the possibility that observed associations or similarities

may be due to friend selection by young people rather than peer pressure. The distinction is that in 'selection', young people are the cause of similarities in smoking behaviours while in peer influence or peer pressure, friends are the cause of any resultant similarities (Norton et al., 1998).

For friend selection, associations between youth and peer smoking are typically strong because of a number of mechanisms that increase behavioural similarities: these are: (1) smokers choosing other smokers and non-smokers choosing other non-smokers as friends; (2) the dissolving of friendships or peer groups when smoking behaviours become dissimilar; and (3) the restriction of entry into existing peer groups to only those with similar smoking behaviours (Bauman & Ennett, 1996). In each scenario, positive associations are produced between smoking by young people and smoking by peers. These associations, however, cannot be attributed to, or explained by peer influence since smoking by young people precedes involvement with smoking peers. In fact, evidence generally suggests that friends are selected based on young people's current smoking behaviours (Iannotti & Bush, 1992).

The method of determining peer smoking behaviour by asking young people to report whether and how much their friends smoke raises another problem in studies of peer influence. Such reports depend on estimations of friend smoking which are based on perceptions of, rather than actual friend smoking (Iannotti et al., 1996). Urberg (1999) argued that results from such studies are systematically biased and that the magnitude of peer influence purported to exist tends largely to be over inflated.

Comparisons of peer smoking measured first by asking young people to report on their friends' smoking activities and then asking those friends to report on their own smoking activities show that young people consistently overestimate friend smoking (Iannotti & Bush, 1992; Iannotti et al., 1996). Bauman and Ennett (1996) ascribed this to 'projection' wherein young people project their own attributes or behaviours to others. When correlated with young people's smoking behaviour,

perceived friend smoking is significantly more strongly related to a young person's smoking behaviour than actual friend smoking (Iannotti & Bush, 1992; Iannotti et al., 1996).

The peer influence model attributes friends or peers as the 'cause' of young people's smoking. However, Bauman and Ennett (1996) argued that correlations based on perceptions of, rather than actual friend smoking produce spurious outcomes that contradict the model. This occurs because projection reverses friend smoking from cause to consequence of young people's smoking.

Contrasting the effects of parent and peer influence, some researchers argue that the relative dominance of the two factors changes as young people mature. Generally, parental influence decreases while peer influence increases as young people approach their teen years (Krosnick & Judd, 1982; Oei & Fea, 1987; Skinner et al., 1985; Utech & Hoving, 1969). However, this reverses from around mid- to late adolescence (Berndt, 1979). Other researchers dispute such age trends and argue that parent and peer influences on youth smoking are both significant and approximately equal in magnitude throughout adolescence (Chassin, Presson, & Sherman, 1984; Chassin et al., 1986; Eiser et al., 1989).

Flay, d'Avernas, Best, Kersell and Ryan (1983, p.142) suggested it was important in such debate to distinguish between the stages of smoking since it was likely that both parents and peers were influential but in different stages of the smoking cycle. For example, parents were probably most influential before young people smoked since they provided "vicarious experiences that allow for the development of attitudes about smoking, images of what smoking is like and why it is done, and intentions to try cigarette". During initiation however, peers were likely to be more important than parents especially in determining when smoking is first tried and perhaps in providing the first cigarette.

Kandel (1985) and Kandel and Andrews (1987) added an extra dimension and suggested that in addition to stages of use, it was also necessary to consider the

type of substance in comparisons of parental versus peer influence. In these studies, the effect of parental variables (attitudes and use) was stronger than those of peer variables for youth initiation of alcohol use. However, peer variables were found to be stronger than parental variables in youth initiation of marijuana use.

Overall, West and Michell (1999) suggested that despite the considerable volume of work already carried out, more remains to be done in this area.

Although parents and peers have been the primary focus of many of the studies on social influences, some attention has also been given to social learning effects from other significant agents of influence (or significant others). These are (usually older) siblings (i.e. brothers and sisters) (Armstrong et al., 1990; Brook, Pahi, Balka, & Fei, 2004; Fergusson et al., 1995; Gordon, 1986; Hunter, Baugh, Webber, Sklov, & Berenson, 1982; McCaul, Glasgow, O'Neill, Freeborn, & Rump, 1982; Murray & Cracknell, 1980; Murray, Swan, Bewley, & Johnson, 1983; Purcell et al., 1979) and 'close' adults (e.g. relatives and neighbours (Pinilla et al., 2002; Quine & Stephenson, 1990) and teachers (Holm, Kremiers, & de Vries, 2003; McNeill et al., 1988)). Results from these studies generally mirror those for parents and peers; that is, smoking attitudes and behaviours of these groups are positively related to young people's smoking behaviours. Generally however, the overwhelming majority of studies have tended to concentrate on the effects of parents and peers.

#### *Access to Cigarettes*

Considerable attention has been paid to controlling young people's access to cigarettes. In Australia, for example, legislation on restricting minors' ability to purchase cigarettes has been in existence since 1902 (Schofield, Sanson-Fisher, & Gulliver, 1997) and in all states and territories, it is illegal to sell and/or supply cigarettes to persons under the age of 18 years (ACOSH, 1995). Given this restriction on supply, easy or ready access to cigarettes by young people before they can legally purchase tobacco products is an important factor in the onset of youth smoking (Alchin & Lee, 1995).



Generally, young people acquire cigarettes through older friends and siblings, or else steal from parents and other adults who smoke (Tyas & Pederson, 1998). In addition, cigarettes are often acquired through retail channels. Although illegal, young people have no problems buying cigarettes from cigarette vending machines 90% of the time (Feighery, Altman, & Shaffer, 1991) and from retail outlets (e.g. supermarket chains, convenience stores and petrol stations) between 38% and 50% of the time (Alexander et al., 1983; O'Connell et al., 1981; Peters, Hedley, Lam, Betson, & Wong, 1997; Sanson-Fisher, Schofield, & See, 1992).

With respect to smoking, access to cigarettes and smoking initiation are closely interlinked. For example, being able to readily acquire cigarettes (particularly, through retail channels) has been found to significantly correlate with increases in the frequency of smoking by young people (O'Connell et al., 1981). In communities where tobacco retail age restrictions have been actively enforced and therefore, access to cigarettes by underage youths has been curtailed, post-enforcement prevalence rates of adolescent experimental and regular smoking decreased by half and two thirds respectively, relative to pre-enforcement rates (Ross & Chaloupka, 2004; Winstanley et al., 1995). However, there appears to be some consensus that the ability of youth access policies is generally limited in respect of lowering overall rates of smoking primarily due to social sources (e.g., friends and older siblings) of obtaining cigarettes (Fichtenberg & Glantz, 2002; Friend, Carmona, Wilbur, & Levy, 2001; Gallet, 2004).

Also related to cigarette access, the same studies by Alexander et al. (1983) and O'Connell et al. (1981) showed that the amount of money young people had or were given to spend was an enabling factor that facilitated smoking initiation (as well as smoking maintenance, and inhibited smoking cessation). In general, having larger amounts of money to spend strongly correlated with increases in smoking initiation and decreases in smoking cessation in young people (and vice versa) (Alexander et al., 1983; Ariza-Cardenal & Nebot-Adell, 2002; O'Connell et al., 1981; Pederson et al., 1997; Scragg et al., 2003; Soteriades, DiFranza, Savageau, & Nicolaou, 2003).

However, this ability to spend is mediated by young people's price sensitivity or price responsiveness. In terms of the price elasticity of demand for tobacco products, young people are significantly more price elastic consumers than adults; that is, their demand for tobacco products is considerably more sensitive to price changes than that of adults (Gilpin et al., 2001). In relation to youth smoking, the overall price elasticity of demand for cigarettes is a sum of two effects. The first is the extent that price influences whether or not people smoke (participation elasticity) and the second is the extent that price influences the amount of cigarettes consumed by those who smoke (quantity smoked elasticity) (Gilpin et al., 2001). In adults, the contribution to overall price elasticity of demand of these two effects is approximately 50:50 while in adolescents, the ratio is 80:20 (Gilpin et al., 2001).

The latter ratio means that increases in cigarette prices have a disproportionately greater impact on whether cigarettes are smoked (participation effect) than on the level of smoking (consumption effect) for youth than adult smokers. The smaller effect of price rises on adult smoking participation is because adult smoking behaviour is generally an addicted behaviour. And while higher prices may decrease the total level of tobacco consumption, they are less likely to effect significant increases in smoking cessation (Lewit & Coate, 1982).

Examining the elements of overall price elasticity of demand individually, the smoking participation elasticity for young people has been calculated to be  $-1.2$  and the quantity smoked elasticity to be  $-1.4$  (Lewit, Coate, & Grossman, 1981). This means that, for example, raising the price of cigarettes by 10% reduces the number of adolescents who smoke by 12% and reduces the number of cigarettes smoked by them by 14%. The overall outcome is that high or rising cigarette prices (such as from sumptuary taxes) reduce the accessibility of tobacco products and dissuade prospective adolescent smokers from taking up smoking (Ross, 2002; Ross & Chaloupka, 2002).

### *Cigarette Advertising*

Cigarette advertising in traditional mediums has been incrementally banned in Australia: advertising on radio and television was prohibited in the 1970s, restrictions on newspaper and magazine ads were introduced in the 1980s, and tobacco sponsorship was phased out in the 1990s (Harper & Martin, 2002). Consequently, tobacco companies have resorted to less traditional methods of marketing including promotion of cigarettes in films, in bars and nightclubs, at rave parties, music festivals and other youth-oriented events (Soulos & Sander, 2004). Advertising in the form of point-of-sale material, packaging, direct marketing and internet ads have also taken on increased importance (Harper & Martin, 2002).

Advertising works in three complementary ways: it transmits information which aids learning and decision making (cognitive effect), it models and shapes attitudes, perceptions and feelings (affective effect), and it triggers impulse and planned purchases (conative effect) (Pollay, 2000). In relation to smoking, these advertising effects directly influence the primary demand for tobacco products. Statistical modelling studies generally show that the consumption of tobacco products increases with increases in tobacco industry advertising expenditures, and decreases where advertising has been banned (Guindon, Tobin, & Yach, 2002; Laugesen & Meads, 1990; MacFadyen et al., 2001).

With respect to the initiation of smoking in young people, evidence generally indicates that increases in the level of exposure to cigarette ads strongly and consistently correlate with increases in the likelihood of adolescent smoking (Alchin & Lee, 1995; Goddard, 1990; Gordon, 1986; Harper & Martin, 2002; Pierce, Choi, Gilpin, Farkas, & Berry, 1998; Pierce et al., 1991). Although adults are not immune to the effects of advertising, young people are generally three times more responsive to tobacco marketing (Pechmann & Knight, 2002).

In general, the relationship between exposure and behaviour is not a static one and over time, the effect of cigarette advertising on adolescent non-smokers taking up

smoking actually becomes stronger (Armstrong et al., 1990). Thus, the majority of adolescents who eventually do take up smoking choose only to smoke one brand of cigarettes (O'Connell et al., 1981). In Australia, adolescents predominantly choose to only smoke one of the four most heavily marketed brands of cigarettes in a market with over 130 other brand alternatives (Winstanley et al., 1995). The top brand accounts for 52% of the youth market (Quit WA & Population Health Division Department of Health WA, 2004) while the top four account for almost 80% (White & Hayman, 2004). Similarly in the US, the top three most heavily advertised brands account for almost 90% of underage cigarette sales (Kessler, 1995). The relationship between advertising and smoking is clearly exemplified by a small US study (n = 100) which found that three quarters of student smokers from a public high school surveyed preferred the brand of cigarettes that was heavily advertised near the school (Sun, Anderson, Shah, & Julliard, 1998).

Generally, cigarette advertising “rehearses, shapes and reinforces” perceptions of smoking and may engender positive attitudes toward the behaviour, distort beliefs about its popularity and social acceptability, and perpetuate myths about smokers and smoking (Pollay, 2000, p.45). Alchin and Lee (1995, p.214) suggested that “glamour, independence and social success” are characteristically recurrent themes in cigarette advertising that, albeit targeted at adult consumers, probably appeal to young people who “aspire to be adults”. Since the development of a predisposition to smoke typically precedes the actual initiation of smoking, advertising positively enhances young people’s beliefs about smoking and smokers, and encourages smoking initiation in adolescent pre-smokers (Pierce et al., 1994). Additionally, cigarette ads may also provide reassurance and support for this decision (MacFadyen & Hastings, 1999).

In fact, a number of studies (Alexander et al., 1983; Armstrong et al., 1990; Sin, 1997) have shown that young people’s involvement with cigarette advertising (e.g. being aware of ads and having positive attitudes toward ads) typically correlates with increases in the likelihood of smoking adoption by non-smokers and vice versa.

### **2.2.2.3 Behavioural factors**

A number of behavioural factors have been shown to correlate significantly with young people's initiation of smoking. These can be broadly categorised as those related to school and those related to risk-taking.

#### *School-Related Behaviour*

A number of school-related behavioural factors such as academic achievement, academic aspiration, attitude towards school and days absent from school can have an influence on smoking behaviour.

With respect to academic achievement, smoking uptake is consistently lower in young people who perform above average scholastically, and higher in those who perform at or below average levels (Bewley & Bland, 1977; Byrne, Byrne, & Reinhart, 1993; Hu et al., 1998; Kaufman et al., 2002; Lee, Trapido, & Rodriguez, 2002; Marston, Jacobs, Singer, Widaman, & Little, 1988; McCaul et al., 1982; Morello, Duggan, Adger, Anthony, & Joffe, 2001; Oei, Egan, & Silva, 1986; Pederson et al., 1997; Purcell et al., 1979; Royal College of Physicians, 1983; Thorlindsson & Vilhjalmsson, 1991; Wright & Fitzpatrick, 2004). In one study, low achievers were found to be 2.3 times more likely to be smokers compared to students who were high scholastic achievers (Jackson et al., 1997). Comparing students who smoke, light smokers generally performed better (i.e. achieve higher grades) than heavy smokers (Bewley & Bland, 1977; Salber, MacMahon, & Welsh, 1962).

In addition to *actual* achievement, young people who *perceive* themselves as being academically poor also tend to exhibit increased smoking uptake (McNeill et al., 1988; Michell, 1989; Pederson et al., 1997; Royal College of Physicians, 1983). One explanation is that perceptions of personal academic achievements may be partial indicators of self-esteem (Hu et al., 1998; Rosenberg, Schooler, & Schoenbach, 1989; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Self-esteem is discussed in more detail in a later section but in general, is inversely related to smoking uptake in young people because students who perform poorly

in school (or perceive that they perform poorly) may turn to smoking as a “defense against a derogated self-image” (Borland & Rudolph, 1975, p.29). In studies that measured self-esteem using a composite subscale of school self-esteem, how young people felt about themselves at school was found to significantly and inversely correlate with whether or not a student smoked (Emery, McDermott, Holcomb, & Marty, 1993; Kawabata, Cross, Nishioka, & Shimai, 1999; McDermott et al., 1992).

Comparing young people’s levels of educational aspiration, those who eventually take up smoking generally have lower academic aspirations which further erode over time, while those who retain their non-smoking status over their school careers generally have higher and more stable levels of scholastic aspirations (Brook, Whiteman, Gordon, & Cohen, 1986; Krohn, Massey, Skinner, & Lauer, 1983; Skinner et al., 1985; Thorlindsson & Vilhjalmsson, 1991).

Attitudes toward school, measured by how often students get in trouble in school, whether students expressly dislike school, whether students are committed to, and participate in school activities, and how many days students are absent from school, also inversely predict smoking in young people. For example, students with conduct problems in school are more likely to smoke compared to students who do not get in trouble in school (Baker et al., 2004; Morello et al., 2001). Similarly, those who explicitly express a dislike for school (Lee et al., 2002; Mazanov & Byrne, 2002; Michell, 1989; Murray et al., 1983; Pierce et al., 1993; Thorlindsson & Vilhjalmsson, 1991), who are less committed to and do not participate in school activities (Krohn et al., 1983; McCaul et al., 1982; Pederson & Lefcoe, 1985; Pinilla et al., 2002; Skinner et al., 1985), and who are more frequently absent from school (Bewley, 1978; Kaufman et al., 2002; Murray et al., 1983; Pederson et al., 1997; Pulkkinen, 1982) all have higher levels of smoking uptake – between 2.4 and 4.2 times higher (Lee et al., 2002) – than their counterparts.

One explanation of why school performance and other school-related variables are inversely related to smoking uptake is that variables such as levels of motivation, self-confidence, competence in learning and sense of control over one's present and future may be indicators of specific personality traits (Hu et al., 1998; Pulkki et al., 2003). Tyas and Pederson (1998) suggested that such traits, which are necessary for scholastic success, may also have a protective effect against smoking.

Another explanation is that students who do not perform well academically may see school as stressful and unpleasant, and may therefore withdraw from school-related activities (including academic learning) and seek out ways (e.g. smoking) to reduce school-stress (Petraitis, Flay, & Miller, 1995).

A further explanation is derived from social bonding theory (Hirschi, 1969) which suggests that young people's ties to 'conventional' society have a constraining effect on behaviour. Those with stronger ties pursue activities that they perceive are 'socially approved' (e.g. doing well at school) and avoid 'deviant behaviours' that jeopardise those ties (e.g. tobacco and other drug use) (Krohn et al., 1983). In contrast, delinquent youths (i.e. youths with weaker ties to conventional society) are free to deviate and as a symbol of their deviance or independence from convention, they use tobacco (as well as other drugs) and commit weakly to school (Skinner et al., 1985).

### *Risk-Taking Behaviour*

Risk-taking behaviour is behaviour that is freely entered into with the knowledge that, although actual outcomes may be uncertain, the behaviour is nevertheless associated with known negative health consequences (Irwin, 1993). From a developmental perspective, risk-taking behaviour is an important means by which young people explore, make difficult decisions and achieve autonomy in the normal course of growing up (Rolison & Scherman, 2002). Risk-taking behaviour may also be a necessary means by which young people develop and express their creativity potential (e.g. in sports, fashion, art, etc) (Moore & Gullone, 1996).

In the empirical literature, youth smoking (a risk behaviour) frequently co-occurs (in the same adolescent) with other risk-taking behaviours such as alcohol and illicit drug use (Ary & Biglan, 1988; Coogan et al., 1998; Dowdell, 2002; Golub & Johnson, 2001; Kandel & Yamaguchi, 1993; Morello et al., 2001; Pulkkinen, 1983; Taylor, Dlamini, Kagoro, Jinabhai, & de Vries, 2003; Thorlindsson & Vilhjalmsson, 1991; Torabi, Bailey, & Majd-Jabbari, 1993; Welte & Barnes, 1987; Yamaguchi & Kandel, 1984a, 1984b). In addition, co-occurrence frequently follows a predictable pattern that typically begins with tobacco and alcohol, and progresses to marijuana and other illicit drugs (Igra & Irwin, 1996; Kandel & Yamaguchi, 1993).

As a category of risky behaviour, youth tobacco and substance use also have close linkages with other categories of risk-taking behaviours such as those associated with risky recreational vehicle use (e.g. driving over the speed limit, driving recklessly or dangerously, not using seatbelts, etc) and risky sexual activity (e.g. having casual sex, having unprotected sex, having multiple sex partners, etc) (Coogan et al., 1998; Irwin, 1993; Jessor, 1984).

Overall, the consistent association of various health-risk behaviours suggests that youth smoking and other risk-taking behaviours may not occur as discrete elements but may instead be part of a broader pattern or syndrome of risk-taking. Some researchers proposed a health-compromising lifestyle approach to explain the overall pattern of risk associations (Neumark-Sztainer, Story, French, & Resnick, 1997; Thorlindsson & Vilhjalmsson, 1991). Other researchers such as Jessor and colleagues alternatively described the pattern of interrelation of various risk behaviours as part of a syndrome of deviant or problem behaviour (Donovan, Jessor, & Costa, 1988, 1999; Jessor, 1998; Jessor, Chase, & Donovan, 1980; Jessor, Donovan, & Costa, 1991; Jessor & Jessor, 1977; Turbin, Jessor, & Costa, 2000).

In relation to the lifestyle approach, multiple health-comprising behaviours such as skipping breakfast and other meals, having inadequate hours of sleep and not



engaging in physical exercise (each of which may be indicative of a health-compromising lifestyle orientation) often co-occur, particularly in young people who take up smoking (Sussman, Dent, Stacy, Burton, & Flay, 1995). Broadly, this correspondence in behaviours suggests a general risk-taking disposition in young people who smoke, particularly in respect of health matters (Neumark-Sztainer et al., 1997).

One possible explanation for this disposition (of having a low regard for health in general and for smoking uptake in particular) is that some young people may perceive that there is little risk for themselves despite the consequences of their risk-behaviours being widely recognised (Turbin et al., 2000). As a human condition, people in general have self-serving and unrealistic biases wherein they believe that they are less likely than others to suffer illness, injury or other ‘bad’ events (Weinstein, 1982, 1989; Weinstein & Klein, 1995, 1996). This condition appears to be especially prevalent in young people who engage in risky behaviours. For example, in a review of the literature on risk perceptions relating to adolescents and smoking, Weinstein (1998) found that as a group, adolescent current smokers generally rated smoking as less risky than did either non-smokers or ex-smokers. At an individual level, adolescent current smokers tended to underestimate their personal risks and typically rated themselves as being less at risk of the harmful consequences of smoking (e.g. getting lung cancer or becoming addicted) than other smokers. Such self-serving optimism typically acts as a strategy whereby risk-taking behaviours can be justified and cognitive dissonance (from engaging in a known risky behaviour) can be reduced (Gerrard, Gibbons, Reis-Bergan, & Russell, 2000).

In relation to the approach that youth risk-taking behaviours are part of a syndrome of deviant or problem behaviour, behaviours are ‘deviant’ or ‘problem’ to the extent that they transgress the legal or social norms of “conventional society” and are “undesirable for adolescents to engage in” (Donovan et al., 1988, p.762). In this literature for example, carrying a weapon (Dowdell, 2002), physical fighting (DuRant, Kahn, Beckford, & Woods, 1997), being in trouble

with the police (Tyas & Pederson, 1998), unhealthy weight loss and suicide attempts (Neumark-Sztainer et al., 1997) and affiliation with a gang (Wright & Fitzpatrick, 2004) are individual risk elements that coincide with youth smoking uptake as part of an overall syndrome of social deviance.

These behaviours are explained by young people's rejection of conventional values as a result of, for example, a rebellious personality, affiliation with deviant peers, poor familial relationship and a low commitment to conventional expectations of academic achievement (Wills, 2004)

As a general observation, both the lifestyle and problem behaviour approaches discussed above suggest that young people who engage in one form of risk-taking behaviour are also likely to engage in other health-compromising or deviant behaviours. Igra and Irwin (1996, p.38) described this as "individual behaviours precipitating one another".

#### ***2.2.2.4 Personal factors***

##### *Personality*

Broadly, personalities are stable sources of individual differences that predispose and preserve characteristic patterns of behaviour (Bermudex, 1999). Although aspects of individual differences or personality traits can be environmentally determined (i.e. learnt), personality type has genetic roots and much of a person's temperament is predetermined from birth (Boeree, 1998).

From a personality approach, smoking uptake is predicated on the basis that "constitutional differences" in inherited personalities exist that increase the likelihood that some young people would eventually become smokers (Eysenck, 1980, p.91). Generally, smokers differ from non-smokers in respect of extraversion (the degree that a person is sociable, impulsive, carefree, etc), neuroticism (the degree that a person is emotional, is likely to worry, has the tendency to be anxious or nervous, etc) and psychoticism (the degree that a person

is emotionally cold, hostile, aggressive, likely to exhibit anti-social tendencies, etc) (Eaves & Eysenck, 1980).

Compared to non-smokers, smokers generally show greater degrees of the above dimensions of personality (Arai, Hosokawa, Fukao, Izumi, & Hisamichi, 1997; Cherry & Kiernan, 1976; Heaven, 1989; Patton, Barnes, & Murray, 1997; Pritchard, 1991; Spielberger & Jacobs, 1982; Wijatkowski, Forgays, Wrzesniewski, & Gorski, 1990). In addition, degrees of extraversion, neuroticism and psychoticism tend to be greater for heavy smokers compared to light smokers, and greater for light smokers compared to non-smokers (Arai et al., 1997; Eysenck, 1965; Kawakami, Takai, Takatsuka, & Shimizu, 2000). Comparing current smokers, those with higher degrees of neuroticism and psychoticism also tend to take up smoking significantly earlier (Arai et al., 1997; Patton et al., 1997).

These associations may be explained as follows: individuals high on extraversion are more susceptible to boredom and may hence smoke to boost cortical arousal; those high on neuroticism react more emotionally strongly to environmental stresses and may hence smoke to cope with feelings of anxiety and nervousness; and finally, those high on psychoticism are more likely to engage in rebellious and sensation-seeking activities and may hence smoke for these reasons (Heaven, 1989; Martin et al., 2002; Pritchard, 1991).

Most of the above studies were cross-sectional. However, Cherry and Kiernan's (1976) work included a longitudinal investigation that tracked associations between dimensions of extraversion and neuroticism, and smoking behaviour. With respect to respondents who were non-smokers at the beginning of the study, subsequent smoking behaviour was recorded over a ten year period (when respondents were aged 16, 20 and 25 years). Cherry and Kiernan's (1976) final longitudinal results were found to correspond with those produced from cross-sectional studies (i.e. that smokers typically exhibited greater extraversion and neuroticism personality dimensions compared to non-smokers). More

significantly, longitudinal results showed that smokers generally had high extraversion and neuroticism scores before smoking uptake. In a more recent longitudinal study, personality traits that generally corresponded with the above dimensions similarly predicted subsequent smoking uptake in adolescents (in effect, highlighting the possibility of an adolescent tobacco-prone personality) (Brook et al., 2004).

More broadly, the dimensions of personality that differentiate smokers from non-smokers in fact, define a more global disposition towards substance use. Thus, traits that are associated with tobacco use also frequently associate with other drug use (e.g. alcohol, marijuana, amphetamine, etc) (Brook, Whiteman, Czeisler, Shapiro, & Cohen, 1997; Kashdan, Vetter, & Collins, 2005; Masse & Tremblay, 1997). Brook et al. (1997) labelled this propensity for involvement with substances as an adolescent drug-prone personality.

Although the above discussion has focused generally on three dimensions of personality (viz. extraversion, neuroticism and psychoticism), the literature in fact includes a large inventory of diverse personality traits or constructs that is regarded as “frequently redundant” (Bermudex, 1999, p.84). Although beyond the scope of the present thesis, an important issue in the personality literature relates to how many personality dimensions or factors should be included. Eysenck postulated three dimensions of personality (extraversion, neuroticism and psychoticism – described above). Others such as Cattell (1957) suggested a 16 factor model (that expanded to include 35 factors). McCrae and Costa (1990) suggested a five factor model (extraversion, agreeableness, conscientiousness, neuroticism and openness). Zuckerman (1991) suggested an alternative five factor model (sociability, neuroticism, aggression, impulsivity and sensation seeking) and Cloninger (1993) suggested seven (novelty seeking, harm avoidance, reward dependence, persistence, self-directedness, cooperativeness and self-transcendence).

Of relevance to the present thesis however, Pritchard (1991, p.1188) noted that “most studies of smoking and personality have been carried out within the framework of Eysenck’s theory and, in fact, all three of Eysenck’s dimensions have been found to be positively related to smoking”.

### *Self-Esteem*

Self-esteem is a measure of how a person evaluates his or her own personal characteristics and abilities. Those who evaluate themselves favourably are said to have high self-esteem (typically characterised by high levels of self-respect and feelings of worth), while those who judge themselves negatively are said to have low self-esteem (characterised by feelings of inadequacy, a lack of self-respect and a persistent focus only on perceived personal weaknesses) (Owens, 1993).

Broadly, the association of these judgements with smoking uptake is an inverse one; young people with high levels of self-esteem generally have lower levels of smoking uptake while those with low levels of self-esteem have higher levels of smoking uptake (Albrecht, Reynolds, Cornelius, Heidinger, & Armfield, 2002; Brook et al., 1986; Byrne et al., 1993; Byrne & Mazanov, 2001; Conrad et al., 1992; Mazanov & Byrne, 2002; Pederson et al., 1997; Peters et al., 1997; Regis & Balding, 1988; Winefield, Winefield, Tiggemann, & Goldney, 1989).

One explanation for this inverse association is that young people with low self-esteem tend to be more conforming and are therefore more susceptible to peer pressure to use tobacco or other substances (Regis & Balding, 1988; Zimmerman, Copeland, Shope, & Dielman, 1997). Owens (1994) and Rosenberg et al. (1989) suggested that young people suffering from low self-esteem have generally experienced failures in conventional society and may thus seek status and recognition in delinquent pursuits. Such pursuits (which typically include the use of tobacco as well as other licit and illicit substances) have an enhancing effect on self-esteem. Young people find appreciation and acceptance from non-normative (i.e. delinquent) referent groups which provide “reflected appraisals, social comparisons and self attributions” (Owens, 1994, p.394). In both the above

scenarios, smoking is primarily a side-effect of young people's search for recognition and group membership to increase self-esteem (Semmer, Dwyer et al., 1987).

An alternate rationale put forward is that young people with low self-esteem have less command over problem-solving strategies and may turn to smoking as a "quick and easy" coping mechanism (Semmer, Cleary, Dwyer, Fuchs, & Lippert, 1987, p.85). When this happens, young people are then less likely to seek or develop other (healthier) coping strategies (Pederson et al., 1997).

Notwithstanding these discussions, findings for the association between self-esteem and youth smoking have not been as consistent as implied above. Inconsistencies such as no associations or opposite associations (i.e. high self-esteem correlating with higher levels of smoking uptake) have been noted in reviews of the literature (Abernathy, Massad, & Romano-Dwyer, 1995; Dolcini & Aldler, 1994; Emery et al., 1993; Glendinning, 1998, 2002; McGee & Williams, 2000; McInman & Grove, 1991; Wright & Fitzpatrick, 2004). Additionally, a number of studies have also confounded the overall debate with findings that low self-esteem does correlate with higher smoking uptake but only in boys not girls (Byrne et al., 1993), and only in girls not boys (Abernathy et al., 1995).

Dolcini and Aldler (1994) suggested that these problems relate primarily to definitional and measurements problems inherent in studies that treat youth self-esteem as a global or uni-dimensional construct (i.e. either as a positive or negative judgement of self in totality). They argued that global self-esteem, as a measure of self-worth, was too general and concealed significant differences across important domains in young people's lives. In similar arguments, Young and colleagues (Young, Denny, Donnelly, Rodriguez, & Hawkins, 2002; Young, Denny, & Spear, 1999; Young, Donnelly, & Denny, 2004) stated that the problem with self-esteem studies was that few researchers actually provided concrete operational definitions for self-esteem because most believed that the construct

was intuitive and common sense, and it was therefore unnecessary to define its nature or the processes by which it operated.

In fact, self-esteem is more likely a multi- than uni- dimensional construct that, in youth populations, can be separated into self-evaluations across a number of specific domains or contextual settings including school (school self-esteem), home (intra-familial or home self-esteem), peer (social or peer self-esteem), and sports and physical activities (athletic self-esteem) (Dolcini & Aldler, 1994).

In relation to adolescent smoking (and other risk behaviours), context-specific self-esteem provides stronger, more relevant and more consistent predictive outcomes of behaviour than does global self-esteem which instead, provides an important measure of overall psychological well-being (Rosenberg et al., 1995). This has been recognised particularly in later research on self-esteem which has used context-specific measures rather than a single global construct (Dolcini & Aldler, 1994; Emery et al., 1993; Kawabata et al., 1999; McDermott et al., 1992; McGee & Williams, 2000; McInman & Grove, 1991; Rosenberg et al., 1995; Young et al., 2002; Young et al., 1999; Young et al., 2004).

Broadly, the relationship between school and home self-esteem, and smoking initiation is an inverse one with positive evaluations of self-worth in these domains generally predicting lower levels of smoking uptake (and vice versa). With respect to peer self-esteem, Emery et al. (1993) noted that the predictive ability of this item with respect to youth behaviour has not been consistent but Kawabata et al.'s (1999) results suggested that the association may be a positive one (i.e. higher levels of peer self-esteem may be related to tobacco use). Kawabata et al.'s (1999) results also showed the same positive relationship for athletic self-esteem and smoking. However, the authors did not suggest reasons for either association. Even so, these studies indicate overall that perceptions of self-worth measured across different domains or contextual settings in the lives of young people can have significantly different implications for predicting youth smoking.

### *Knowledge, Attitudes and Beliefs*

In the social cognitive approach, cognitive factors are seen as the main determinants of health-related behaviours (Conner & Norman, 1996). Although health behaviour is influenced by a range of other factors (e.g. socio-demographic, environmental, behavioural, etc), these effects are seen to be “largely or completely mediated” by knowledge, attitudes and beliefs (Sutton, 2004, p.6500).

With respect to smoking uptake, young people’s knowledge, attitudes and beliefs about smoking and smokers are seen as the main predictors of adolescent smoking in this approach. Empirically, this view has received strong and consistent support. For example, in their review of longitudinal studies incorporating cognitive factors as predictors of adolescent smoking onset, Conrad et al. (1992) found that studies that investigated knowledge or beliefs successfully predicted smoking 67% of the time while those that investigated attitudes as predictors of smoking were successful 73% of the time. Other reviews of the youth smoking literature have also found strong associations across the majority of studies examined in relation to these factors and youth smoking (Derzon & Lipsey, 1999; Flay et al., 1983; Hill, 1990; Oei & Fea, 1987; Tucker, 1987; Tyas & Pederson, 1998).

In the literature, knowledge is operationalised as risk awareness and associations with smoking behaviour are typically investigated in terms of young people’s cognisance of health consequences associated with smoking. For example, differences in smokers and non-smokers’ awareness of whether smoking causes addiction, lung cancer, lung problems, heart disease, heart problems, heart attack, cancers, coughing, breathlessness, breathing difficulties, stroke, bronchitis, wrinkles, polio, arthritis, colds, dandruff, flu, chicken pox, tooth decay or gum disease; whether cigarette smoke is harmful to non-smokers, whether smoking during pregnancy affects unborn babies, or whether environmental or ‘second-hand’ smoke causes chest problems in children (Alexander et al., 1983; Ashley et al., 2000; Charlton & Blair, 1989; Eckhardt et al., 1994; Morello et al., 2001;



Norman & Tedeschi, 1989; O'Connell et al., 1981; Pederson & Lefcoe, 1986; Peters et al., 1997; Rawbone & Guz, 1982; Ritchie, 1987).

Overall, most young people have “high levels of knowledge and awareness of the negative health consequences of smoking” (Flay et al., 1983, p.140). Even so, non-smokers generally score higher than smokers in terms of correctly identifying specific consequences associated with smoking and the findings suggest that smokers may be less aware than non-smokers of smoking-related risks. In some instances, not all differences in knowledge scores for smokers and non-smokers were statistically significant. Eckhardt et al. (1994) and Alexander et al.’s (1983) studies showed that correlations were only significant for older (13 and 14 year olds) but not younger (11 and 12 year olds) respondents even though scores were higher for non-smokers than smokers across age groups, indicating that correlations between health knowledge and smoking behaviour may be influenced by age or development.

In addition to knowledge, young people’s attitudes and beliefs – typically developed before experimentations with smoking – also prospectively predict smoking uptake (Baker et al., 2004). In contrast to knowledge which is objective or factual, beliefs and attitudes are subjective perceptions of smoking and smokers acquired primarily through socialisation processes involving agents such as family, peers, school and the media (Conner & Norman, 1996; Pechmann & Knight, 2002). Generally, favourable attitudes and beliefs are associated with smoking uptake while negative or unfavourable attitudes and beliefs are associated with smoking abstinence (Ariza-Cardenal & Nebot-Adell, 2002; Ashley et al., 2000; Chassin, Presson, Sherman, & McGrew, 1987; Engels et al., 1999; Gillmore et al., 2002; Holm et al., 2003; Morello et al., 2001; Murray, Prokhorov, & Harty, 1994; Murray et al., 1983; Pederson & Lefcoe, 1982; Pederson & Lefcoe, 1985).

A diverse range of specific beliefs has been investigated for correlations with youth smoking uptake in the literature. Broadly, these beliefs can be categorised

as relating to: (1) perceptions of costs or disadvantages of smoking, (2) perceptions of benefits or advantages of smoking, (3) perceptions of the social desirability of smoking, and (4) the rationalisation of risks associated with smoking.

For beliefs relating to the costs or disadvantages of smoking – for example, beliefs that smoking is dangerous, that smoking is addictive, that it affects health, that it reduces fitness, that they (smokers) will get in trouble, that parents will be very mad, and that smoking is impossible to stop – generally associate with young people's reluctance to take up smoking (Beaglehole, Eyles, & Harding, 1978; Charlton, 1984; Gordon, 1986; Pederson & Lefcoe, 1982; Smith & Stutts, 1999).

On the other hand, beliefs relating to the benefits of smoking generally associate with young people's uptake of smoking – for example, beliefs that smoking helps control body weight (particularly for girls), helps people to relax, helps give confidence, helps calm nerves and anxiety (Charlton, 1984; Crocker et al., 2001; Greenlund, Johnson, Webber, & Berensen, 1997; Holm et al., 2003; Morello et al., 2001; Pederson, 1986; Simantov, Schoen, & Klein, 2000; Tuakli, Smith, & Heaton, 1990; Tucker, 1987; Wang, Fitzhugh, Cowdery, & Trucks, 1995; Wang, Fitzhugh, Eddy, & Westerfield, 1996).

Similarly, beliefs relating to the perceived social desirability of smoking also correspond with smoking uptake. For example, beliefs that smokers are popular, respected, 'cool', glamorous, tough, independent, mature or adult-like, that most of their friends or peers smoke, that smoking would help young people get dates, that most of their friends want them to smoke and that their parents would not mind if they smoked generally increase young people's perceptions of the acceptability of smoking and hence, the likelihood of smoking initiation (Andrews, 2005; Dinh, Sarason, Peterson, & Onstad, 1995; Gordon, 1986; Morello et al., 2001; Newman, Martin, & Irwin, 1973; Norman & Tedeschi, 1989; Pechmann & Knight, 2002; Wang et al., 1996; Winter, de Guia, Ferrence, & Cohen, 2002).

Rationalisations about the safety of smoking likewise correspond with smoking uptake in young people. For example, beliefs that smoking is only dangerous for older people, that smoking is only bad when it is excessive, that smoking is only bad or dangerous if people smoke for many years, that smoking is only bad if the smoke is inhaled, that there are no health risks in the first few years of smoking, that smoking is OK to try once, that smoking is not harmful to the health, that smoking filtered cigarettes is safer than non-filtered, that smoking can be stopped before any damage is done and that smoking is not addictive, these beliefs generally lessen young people's perceptions of their personal susceptibility to smoking harm and increase the likelihood of smoking uptake (Baker et al., 2004; Buller et al., 2003; Greenlund et al., 1997; McCaul et al., 1982; Murray & Cracknell, 1980; Newman et al., 1973; Ritchie, 1987; Smith & Stutts, 1999; Wang et al., 1996).

As noted above, positive or favourable attitudes toward smoking and smokers generally correlate with smoking uptake. For example, young people who express attitudes such as smoking is pleasurable or enjoyable, if adults can smoke then young people should be allowed to as well, cigarette ads are OK, smoking with friends is enjoyable, there is nothing wrong with smoking, and warning labels on cigarette packets have no influence on smokers are more likely to smoke (Crowe, Torabi, & Nakornkhet, 1994; Greenlund et al., 1997; Murray & Cracknell, 1980; O'Connell et al., 1981; Tucker, 1987).

Conversely, negative or unfavourable attitudes decrease the likelihood that young people will take up smoking. For example, those who express attitudes such as smoking is a dirty habit, smoking is disgusting, smoking is smelly, children caught smoking should be punished, cigarettes should be harder to get, young people smoke only to show off, smokers can't think for themselves, smokers are dumb/stupid, smoking is a waste of money, smoking should be banned in public places, seeing young people who smoke is a 'turnoff', and never wanting to date a smoker are generally unlikely to initiate smoking (Beaglehole et al., 1978; Greenlund et al., 1997; Holm et al., 2003; Jarvis, Goddard, & McNeill, 1990;

McCaul et al., 1982; Michell, 1989; Morello et al., 2001; Murray & Cracknell, 1980; Piko, 2001; Tucker, 1987; Wang et al., 1995).

### *Intentions to Smoke*

Hill (1990, p.206), in his review of the youth smoking literature, described young people's intentions to smoke cigarettes (a person's estimation of how likely they are to smoke at some point in the future) as "the most consistent predictor of smoking behaviour" in the literature. This finding was similarly replicated in Conrad et al.'s (1992) review of longitudinal studies of youth smoking where intentions to smoke were found to predict smoking in 89% of the studies that investigated this factor – the highest percentage success of all predictors reviewed.

More broadly, Godin and Kok (1996, p.93) reviewed 58 studies that investigated intentions as a determinant factor in the prediction of health behaviours such as weight reduction (eating/dieting); attendance at breast and cancer screening; breast and testicular self-examination; jogging, biking and exercising; using condoms; and oral hygiene (brushing and flossing). Overall, they found that intentions accounted for 66% of the total explained variance in these studies and concluded that intentions were clearly "the most important" predictive variable of behaviour in the health domain.

McGahee, Kemp and Tinger (2000, p.136) stated that "although there is not always perfect correspondence between intentions and behaviours, people will generally act in accordance with their intentions". In relation to smoking uptake, the likelihood of young people taking up smoking within a year is two and a half times greater (OR = 2.5) for those with stated intentions to smoke compared to those with stated intentions not to (Ariza-Cardenal & Nebot-Adell, 2002).

This correspondence between young people's smoking intentions and subsequent behaviour appears to be relatively stable even over longer periods of time. Engels et al. (1999) found that young people with intentions to smoke were almost twice as likely (OR = 1.96) to do so after five years compared to those with no

intentions to smoke. Mazanov and Byrne (2002) investigated the reverse and tracked young people who stated that they had no intentions to take up smoking and found that over 90% were still non-smokers after two years.

Although discussed and sometimes investigated separately in the literature, knowledge, attitudes, beliefs and intentions to smoke are conceptually interrelated: Intentions to smoke cigarettes are generally determined by young people's attitudes toward smoking while attitudes, in turn, are built upon young people's smoking-related knowledge and beliefs (Barnea, Teichman, & Rahav, 1992). Following this relational chain, knowledge, attitudes and beliefs influence smoking behaviour only indirectly through intentions. Consequently, intentions to smoke are the most proximal or immediate precursors of smoking and therefore, intentions are also the most highly predictive factor of adolescent smoking (Petraitis et al., 1995).

### **2.2.3 Summary of predictors**

This section has presented a review of the most significant predictors of youth smoking uptake. These predictors include socio-demographic factors such as SES, age (also grade or school year), gender, ethnicity; environmental factors such as parental and peer smoking, access to cigarettes and cigarette advertising; behavioural factors such as school-related behaviour and risk-taking behaviour; and personal factors such as personality, self-esteem, knowledge, attitudes and beliefs, and intentions to smoke cigarettes.

As noted in the introductory comments, smoking has a complex ontology and the present review has focused only on those factors in the literature found to significantly predict the initiation or uptake of smoking in young people.

## **2.3 Smoking addiction**

### **2.3.1 Introduction**

In simple terms, addiction is characterised by the inability of a person to freely stop a compulsive behaviour when he/she wishes to do so (Brigham, 1998). Physical and/or psychological cravings override any cognitive control that an addicted person may wish to exercise and individuals are generally powerless against such strong urges (Marlatt, 1978). Typically, this inability to regulate behaviour even when the adverse consequences of continuing the behaviour produces feelings of a loss of control, a loss of personal power (Christen & Christen, 1994), or in philosophical terms, a loss of autonomy (DiFranza et al., 2002) in persons addicted.

In relation to cigarette smoking, the majority of adult smokers are generally said to meet the criteria for addiction (Henningfield, Moolchan, & Zeller, 2003). The primary cause of this addiction is nicotine, a naturally occurring alkaloid substance in tobacco (US Department of Health and Human Services, 1988). Nicotine is usually absorbed through the lungs when tobacco smoke is inhaled from cigarettes, cigars and pipes (National Institute on Drug Abuse, 2002). Nicotine intake produces two physiological reactions. First, the body grows accustomed to a level of nicotine in the blood and seeks to maintain this level, creating a continued need for self-administration through repeated smoking (ASH Australia, 1999). Concurrently, the body also develops a tolerance to nicotine which reduces its psychoactive (i.e. chemical or biological changes in the brain) effects (ASH Australia, 1999). This creates the need for larger and more frequent doses of nicotine to be administered through increased consumption of tobacco products. In these ways, nicotine perpetuates smoking behaviours.

Nicotine also maintains a role in making smoking cessation extremely difficult. Withholding nicotine intake usually gives rise to withdrawal symptoms that include cravings for cigarettes, irritability, restlessness, sleeplessness and increased appetite leading to weight gain (Owen & Halford, 1988). In addition to

these unpleasant feelings, the person experiences impairment of a range of psychomotor and cognitive functions when nicotine is withheld, producing confusion, reducing concentration and diminishing short-term memory (Malmstrom, 1998).

Hence, nicotine causes addiction and reinforces smoking behaviours through its pharmacological effect. However, the act of smoking itself is supported by psychological conditioning that further promotes smoking behaviour and plays an important role in maintaining the addiction (Russell, 1978). For regular smokers, the act of smoking (for example, the lighting of the cigarette, the way it is held in one's hand, the tapping or flicking of ash and other smoking-related actions) represents a personalised ritual (Gale & Ney, 1989). Each smoker develops a repertoire of approximately 25 distinct and separate idiosyncratic sub-acts that are repeated each time a cigarette is smoked (Christen & Christen, 1994). In tense or difficult situations, these stylised rituals provide psychological comfort and help smokers maintain, as well as project, an image of calm and control (Berger, 1982). This non-pharmacological reward generates strong feelings of dependence which also reinforces smoking behaviours (Russell, 1979).

The effect of psychological conditioning also operates in another way. Habitual or regular smokers are socially conditioned by environmental cues to expect cravings and other unpleasant withdrawal symptoms from smoking deprivation (Eiser, 1985). Through social learning, smokers are also psychologically cued to anticipate failure if they attempt to give up or quit smoking (Owen & Halford, 1988). In both situations, smoking is maintained through negative expectancies or negative reinforcement but the behaviour is not directly attributable to the pharmacological effects of nicotine. Hence, smoking addiction also occurs in spite of the negative effects of nicotine on the body (Eiser, 1985).

### **2.3.2 Perceptions of smoking addiction**

In the above review of factors predicting youth smoking uptake (Section 2.2), it was stated that young people's knowledge, attitudes and beliefs about health and

other risks and benefits associated with smoking are generally the best predictors of youth smoking uptake. Yet, despite the significant association between smoking and addiction, issues of smoking addiction are not often addressed in research relating to the prevention of youth smoking uptake. A search of the literature revealed mainly passing comment rather than systematic work on young people's addiction-related cognitions. The exception to this was Rugkasa et al.'s (2001) study of 10-11 year old children's views on smoking and addiction. The following paragraphs report findings from this work.

Overall, 'scientific' notions of addiction were "largely irrelevant" to children's perceptions and experiences relating to youth smoking (Rugkasa et al., 2001, p.595). Although aware of the association between smoking and addiction, and knowledgeable about the addictiveness of cigarettes, children in the study were typically unconcerned about childhood addiction. Conceptually, addiction was linked in the minds of children to adult but not child smoking. Children perceived adult lives as stressful and that adults therefore 'need' cigarettes to help calm nerves, prevent depression and cope emotionally. This perceived reliance on cigarettes to help manage their psychological state and promote happiness meant that adults were generally seen as being unable to stop smoking and, to an extent, as having 'lost control'. The inability to stop smoking and the lost of control were ideas which coincided with how children defined addiction (as being unable to give up smoking) and were the primary reasons that children associated addiction primarily with adult smoking.

In contrast, children saw childhood smoking as behaviour engaged in to improve a child's social status, to gain membership into social groups and to maintain established social relations: in effect, young people who smoked were seen as "actively utilising their habit" to communicate an image (e.g. 'cool', 'hard' and 'grown up') (Rugkasa et al., 2001, p.595). As a consequence, childhood smoking was generally viewed by children as volitional and under the child's control. While not negating the fact that young people may become addicted, the perception that young smokers smoked out of choice and that they were 'in



control' of their smoking produced an overall "lack of concern" for childhood addiction in children (Rugkasa et al., 2001, p.599).

In addition to being unconcerned about addiction, Rugkasa et al. (2001) also found that children in their study had serious misconceptions about the nature of addiction to smoking. For example, some children believed that tobacco smoke was contagious and that this caused non-smokers to become addicted when they came into contact. Others believed that addiction occurred only after smokers had attained some specific level of maturity or age. In respect of how quickly addiction could manifest itself, some children thought that this would occur fairly quickly (e.g. in two or three weeks) while others believed that addiction was a slow process that took three to four years.

For consequences, children viewed the lost of control and the helplessness to do anything about the negative effects on health from being dependent on cigarettes (and thus being unable to stop smoking) as a primary concern. However, as stated above, this was generally viewed as an adult only concern and did not appear to have high relevance for young smokers. Other consequences of being addiction included economic loss (i.e. spending money on cigarettes rather than saving money), reduction in fitness and serious health effects.

Rugkasa et al. (2001) speculated that for some young people, addiction could be viewed positively rather than negatively, as having communicative value (e.g. child smokers who were addicted had the qualities of being 'cool', 'hard', 'grown up' or 'big'). Some young people might see addiction as enabling "a negotiation of... social status" (Rugkasa et al., 2001).

### **2.3.3 Conclusion**

Overall, Rugkasa et al. (2001) showed that children did think about addiction in relation to smoking. In spite of having perceptions that addiction was an outcome generally relevant only for adult but not child smokers, young people nevertheless

had ideas about the nature of addiction, its causes and effects, its occurrence and the consequences associated with being addicted.

Since young people's knowledge, attitudes and beliefs about health and other risks and benefits associated with smoking are generally the best predictors of youth smoking uptake, the findings by Rugkasa et al. (2001) in relation to smoking addiction can be expected to have behavioural implications even though these were not investigated in the study. For example, the notion of children that young people 'actively utilise' their smoking and are 'in control' of their habit contrasts starkly with Kessler's (1995, p.187) report of a real "sense of regret and helplessness" that young smokers experience when they discover themselves unable to stop smoking.

Rugkasa et al.'s (2001) work represents an initial study and the present dissertation will provide a more in-depth and systematic exploration of how children and adolescents conceptualise addiction to smoking. In addition, the present work will expand Rugkasa and colleagues' original focus to include an investigation of the behavioural implications of young people's conceptualisation of smoking addiction.

## **2.4 Summary**

This chapter has examined the extent of youth smoking in Australia and has also provided a comprehensive review of factors that predict youth smoking uptake. In addition, the issue of smoking addiction was discussed, particularly in relation to the current lack of understanding of youth perceptions of the topic.

In the next chapter, a qualitative exploration of young people's conceptualisation of smoking addiction will be presented.

## **Chapter THREE: YOUNG PEOPLE'S CONCEPTUALISATION OF ADDICTION**

---

This chapter presents the exploratory study of young people's conceptualisation of smoking addiction. Primary objectives of the study together with the method used to determine young people's conceptualisation of the topic are described here. Key results are presented and their significance is discussed.

### **3.1 Introduction**

The primary objective of the present study was to explore how children and adolescents conceptualised smoking addiction. Specifically, this involved an investigation into young people's developmental understanding of the definitional characteristics of smoking addiction, the nature or cause of this addiction, and its occurrence or onset. In addition to young people's conceptual understanding, an important determination in the present exploration was the relevance of smoking addiction in relation to attitudes toward cigarette smoking and to decisions involving smoking-related choices.

According to Zikmund (1997), exploratory studies are preliminary research conducted to clarify, define and generally provide a better understanding of the qualities or characteristics associated with a research problem, situation or issue.

Rather than “precise measurement or quantification”, data from exploratory studies are predominantly qualitative in nature (Zikmund, 1997, p.103). Qualitative research attempts to understand phenomena in relation to the meanings that people ascribe to them (Denzin & Lincoln, 1994) and is particularly helpful for identifying preliminary questions which can then be addressed quantitatively (Greenhalgh & Taylor, 1997). Common qualitative techniques and methods include observation, in-depth interviews and focus groups (Greenhalgh & Taylor, 1997). The analysis employed in exploratory studies is usually content analysis and through this, analytical categories are derived inductively from the data which describe and explain the phenomenon being studied (Pope, Ziebland, & Mays, 2000).

In this instance, the phenomenon to be explored was young people’s conceptualisation of smoking addiction.

## **3.2 Methodology**

The qualitative method used in the present study was the in-depth interview. A series of individual interviews was conducted with primary and secondary school students to explore young people’s conceptualisation of smoking addiction and the relationship, if any, of smoking addiction beliefs and intentions to take up smoking. The following sections describe the methodological issues relevant to this exercise.

### **3.2.1 Sample selection**

Having obtained permission from the Education department to approach schools, five primary and five secondary schools in metropolitan Perth, Western Australia, were randomly selected from the local White Pages telephone directory. Principals were approached by telephone and asked to participate in a study on cigarette smoking. From these schools, clusters of students in the targeted school levels (Years Five and Ten) were interviewed after obtaining active consent from

principals, teachers, parents and students. Active consent was obtained by providing Letters of Approach to principals and teachers and securing approval to interview in the schools. Next, parents and students were provided with Statements of Disclosure and Informed Consent letters to sign and return prior to the interviews. A final consent was obtained by formally asking students at the beginning of interviews if they wished to withdraw participation.

Since the current study was intended to be descriptive rather than statistical, no representative quotas were imposed on the number of schools approached or the number of young people to be interviewed from each school. However, government and non-government schools represent two broad categories of school choices available in Australia (MCEETYA, 2003) and students in both school types were targeted for interviews.

Of the ten schools contacted, four primary and three secondary schools agreed to participate in the present study: two were Government and five were non-government schools. With agreement from teachers, students were randomly selected from health education classes and separately interviewed during these class periods. To reduce disruptions to the teaching curriculum caused by the length of the interviews, the number of interviews conducted at each school was limited to approximately ten. Sixty-eight students (nineteen boys and forty-nine girls) were interviewed in total. The imbalance in gender resulted from the inclusion of two all-girls schools. Table 3.1 presents an overview of the sample obtained.

Overall, the non-probability sampling approach used in the present study is generally considered common in exploratory studies (Burdess, 1994). It is also regarded as appropriate when outcomes are expected to be only indicative or suggestive as in this situation, rather than statistically representative (Miller, 1991).

Rugkasa, et al's (2001) study of young people's views of smoking and addiction surveyed children aged 10-11 years. For purposes of comparison with that study, the present exploration selectively targeted students aged 10 years. In Western Australia, students of this age group would typically be in primary Years Four or Five.

*Table 3.1  
Sample Overview for Qualitative Study*

	n	%
Schools Approached		
- Primary	5	50
- Secondary	5	50
- Total	10	100
Schools Participated		
- Primary	4	57
- Secondary	3	43
- Total	7	100
- Government	2	29
- Non-government	5	71
- Total	7	100
Students Participated		
- Primary	46	68
- Secondary	22	32
- Total	68	100
- Boys	19	28
- Girls	49	72
- Total	68	100

To explore developmental differences in the understanding of young people, students aged 15 years were also selected as target respondents in the present study. In Western Australia, young people at this age would generally be in secondary school in Year Ten. This age and school level were judged as providing an appropriate level of contrast since schooling is compulsory in the majority of Australian states until age 15 and Year Ten demarcates the final year of junior secondary education (MCEETYA, 2003). While older students in senior secondary education (i.e. those aged 16 and 17 years in Years 11 and 12 respectively) could be expected to articulate greater factual knowledge, the focus in the present study was young people's subjective understanding of smoking addiction.

### **3.2.2 Interview procedure**

Students were individually interviewed in their schools in sessions lasting between 20-30 minutes. Assurances of confidentiality and anonymity were given at the beginning of each interview. In addition, young people were advised before the start of questioning that they could refuse any of the questions and that sessions could be terminated at their request at any time. These conditions satisfied ethics procedures but were also intended to increase the openness and honesty of the responses that the interviewees would give.

For analysis and comparison purposes, consistent questioning procedures (i.e. the method and order in which questions are asked) and lines of questioning (i.e. the subject matter covered) were maintained in all the interview sessions. However, respondents were generally free to articulate and pursue any thoughts arising from the course of discussions relating to cigarette smoking. This method of combining structure and flexibility in the interview process was modelled after Laurendeau and Pinard's (1962) 'pre-planned interviews' or 'directed conversations', and Piaget's (1930) 'clinical method', both of which were specifically developed to tap into young people's conceptual understanding of a particular subject area. In the health domain, this procedure has been successfully used to examine young people's conceptualisation of illness (Bibace & Walsh, 1980), AIDS (Walsh & Bibace, 1991), violence (Buckley & Walsh, 1998), stress (Thies & Walsh, 1999) and smoking (Wang & Henley, 2001).

During interviews in the present study, respondents were initially directed to discuss cigarette smoking. Major themes investigated in relation to this subject included 'what is smoking?', 'why do people smoke?', 'what happens when people smoke?' and 'would you smoke and why/why not?'. Where responses provided were vague or incomplete, these were clarified by asking 'how' and 'why' questions and allowing interviewees to further expand and elaborate on their answers.

Young people were not specifically asked what they thought about addiction in the present study, that is, no explicit direction or suggestion was given to discuss smoking addiction. Instead, interviews were conducted in a manner that allowed students to lead into discussions of addiction on their own. In particular, questions such as ‘what happens when people smoke?’ and ‘would you smoke and why/why not?’ were presented as opportunities to discuss addiction issues. This approach was used as a result of Rugkasa et al’s (2001) finding that few children mentioned addiction as a danger or consequence of childhood smoking. It was expected that where addiction was a salient smoking-related issue in the minds of respondents, then this would naturally emerge and develop in the course of discussions on cigarette smoking.

In the event that the issue of addiction was raised, key themes such as ‘what is addiction?’, ‘how does it happen?’, and ‘how quickly does it happen?’ were then explored with the particular interviewee. This was to minimise any likely influence on what young people had to say about smoking addiction and how they actually said it. Where young people provided unclear responses, again they were encouraged with ‘how’ and ‘why’ questions to further clarify their answers.

### **3.2.3 Analyses**

Each interview session was audio taped, transcribed and analysed using QSR Nud\*st5, a qualitative analysis software program. Consistent with the objectives outlined above, a content analysis was performed to identify, group and compare themes in the data that provided insights into young people’s understanding of smoking addiction. Rather than an investigation into the extent and accuracy of respondents’ knowledge of smoking and addiction (i.e. an etic or external, objective approach), the analysis sought to uncover at a deeper level, the interpretation, meaning and significance that young people attached to that knowledge. In this respect, the approach in the present study was primarily emic and focused on the respondent’s idiosyncratic perspective.



## **3.3 Results**

Findings from the 68 student interviews are presented in the following sections. Verbatims are given in italics with respondent's gender following.

No apparent content differences in smoking addiction concepts were found for variables such as respondent's sex and smoking status. Socio-economic information was not collected in this study although this could be inferred from the type of school that students attended – i.e., government schools would generally be lower SES than non-government (private) schools. However, determining SES solely from type of school has inherent limitations and in any case, no apparent content differences were found in the interviews in respect of school type.

Content differences were observed with respect to developmental factors (i.e. age or school level) and the results reported below are organised to reflect this.

### **3.3.1 Smoking addiction concepts: 10 year olds**

This section presents the conceptualisation of smoking addiction of primary school students aged 10 years in Year Five. Forty-six students (fourteen boys and thirty-two girls) were interviewed. Nineteen were from non-government schools while 27 were from government schools. Three of the schools were co-ed schools and one was an all-girls institution (total = four primary schools).

None of the students in this group smoked cigarettes although two said that they had tried smoking once. Even though almost all the students were non-smokers, most did have indirect experience with cigarettes and smoking as a result of having parents, siblings, relatives, friends or neighbours who were current or ex-smokers.

In discussions on cigarette smoking, 32 of the 46 students (70%) independently raised the issue of addiction in the course of their respective interviews. There were 9 boys (64%) and 23 girls (72%) in this group. Twenty-one (66%) were from government and 11 (34%) were from non-government schools. Table 3.2 presents an overview of this sample.

	n	%
Students Interviewed		
- Boys	14	30
- Girls	32	70
- Total	46	100
- Government	27	59
- Non-government	19	41
- Total	46	100
Students Who Mentioned Addiction		
- Boys	9	64
- Girls	23	72
- Total	32	70
- Government	21	66
- Non-government	11	34
- Total	32	70

The following sections report concepts of smoking addiction from these students.

### 3.3.1.1 What is addiction?

Respondents typically associated smoking addiction with regularity and persistence of behaviour. Many felt the need to stress that this was not normal or regular behaviour by emphasising that addiction was a ‘big’ habit that keeps ‘going and going’. Some respondents discussed addiction as a direct (negative) consequence of smoking:

*“Smoking makes you addicted”* (male),

*“When people start smoking they get addicted to it”* (male).

They explained being addicted to smoking as simply:

*“You just can’t stop doing it”* (male).

Some of the respondents thought of addiction in terms of developing:

*“A big habit”* (female).

This was similar to the concept of addiction and dependency because:

*“When you take it [cigarettes] and have it once, it becomes a habit for you... then you just can’t stop”* (female).

Some respondents did not use the words ‘addiction’ or ‘habit’ but nevertheless, conveyed the idea of addiction:

*“You just don’t want to stop and you just want to keep going and going”*  
(male).

In line with this view of addiction, respondents generally recognised that giving up or quitting smoking was difficult:

*“You can’t stop smoking, it’s really hard to stop, it’s just really hard”*  
(male).

*“You try to quit but you can’t”* (female).

*“You get really addicted to it [smoking] and you can’t stop, it’s really hard to quit”* (male).

### 3.3.1.2 Nature of addiction

Overall, addiction was likened to an irresistible urge that was difficult or impossible to control. Addiction was seen to result from two major origins: (1) a ‘drug-like’ physiological effect or (2) a more benign but strong liking for something. The former was attributed to a substance in tobacco and addictive behaviour was seen as developing because cigarettes contained:

*“This thing called nicotine and that makes you addicted... and it makes you can’t stop smoking” (male).*

Another identified that cigarettes have:

*“A drug in it that makes you get addicted to it... and you keep smoking all the time” (female).*

This was because:

*“Every time you take one [cigarette] another drug comes in [to your body] and it keeps coming in... so if you’ve got a lot in there... in your lungs... like if you’ve got a ton in there then it would be really really hard [to stop]” (female).*

For other respondents, the nature of ‘addiction’, ‘habit’ and ‘don’t want to stop’ was less distinct or ominous and ‘just’ happened because smokers simply liked the taste of cigarettes or smoking:

*“You’ve tasted it [cigarettes] before and you just want to keep doing it” (male).*

As a result, cigarettes per se were seen as making smokers lose control:

*“Once you see a cigarette packet, you can’t avoid it, you have to buy it”*  
(female),

*“People can’t stop [smoking] because when they see other people smoking, they just want to smoke too”* (male).

This irresistible quality was likened to:

*“When you eat chocolate, it’s got a nice taste and then you just can’t stop”*  
(male), and

*“It’s like us quitting on soft drinks... it’s really hard”* (male).

### **3.3.1.3 Onset of smoking addiction**

The onset of addiction was conceptualised in one of two ways. Respondents spoke of being ‘hooked’ as either a function of quantity (the number of cigarettes smoked) or duration (the number of days or weeks of continued smoking). Some believed that smoking as few as one or two cigarettes would cause addiction:

*“Just one smoke... and then you get addicted to them straight away”*  
(female),

*“After you’ve had a couple of cigarettes you get really addicted to it”*  
(male).

Others thought they could safely smoke up to five cigarettes:

*“You can smoke five and then it would become a habit”* (female).

One respondent thought the maximum number of cigarettes that could be smoked was 20 before addiction set in. For these children, addiction onset was thought of in terms of the quantity or number of cigarettes smoked.

Other respondents thought of addiction onset in terms of duration, ranging from one to two days of smoking, to a few days, two weeks, two years and even ‘a long time’.

Because many of the interviewed students conceptualised the nature of addiction as liking the taste of cigarettes or smoking, perseverance was seen as a factor in addiction onset:

*“Sometimes [the] first time they [smokers] try it, they don’t like it, second time they try it they think it’s a little bit good, then third time they try it they think it’s really good so then they keep on doing it” (male).*

Perseverance was an important issue because even though the students had never smoked, most expected that cigarettes tasted ‘yucky’ or ‘gross’ and that liking cigarettes was an acquired taste.

#### **3.3.1.4 Intentions to trial cigarettes**

Young people in this study viewed smoking (and smokers) very negatively:

*“They [smokers] were just being stupid the first time they did it” (male);*

*“They’re dopey” (female), and*

*“If [smokers] take one smoking cigarette, if they’re a stupid person, they get addicted to it” (male).*

In keeping with this view, none of the respondents said they intended to become a smoker.

However, some young people said they would like to experiment:

*“I don’t really like smoking [but] I just want to experience it”* (female).

Significantly, those who said they would like to try smoking all held a common belief – that addiction onset required more than one cigarette or more than one day of smoking. These young people believed that cigarette trials were not dangerous if these experiments fell within the perceived ‘safe’ range:

*“I might try it but I won’t do it for like two weeks cause then I’ll get the habit”* (male);

*“You can smoke about five and then it could become a habit”* (female);

*“One might be ok but if you have five in a week it won’t be ok”* (female),  
and

*“I might smoke one”* (female).

In contrast, respondents who believed that one cigarette or smoking for one day would produce almost immediate addiction consequences were strongly committed to never smoking at all.

### **3.3.2 Smoking addiction concepts: 15 year olds**

This section presents the conceptualisation of smoking addiction of secondary school students aged 15 years in Year Ten. In total, 22 students (five boys and seventeen girls) were individually interviewed from three secondary schools. Six of the students were from government and 16 were from non-government schools.

Two students identified themselves as ex-smokers and the remaining 20 reported that they were non-smokers. Eight students in the latter group admitted to having

tried smoking while many others had indirect experience of cigarettes and smoking as a result of having parents, siblings, relatives and friends who were current or ex-smokers.

*Table 3.3  
Sample Overview – Secondary School, Year Ten (15 Year Olds)*

	n	%
Students Interviewed		
- Boys	5	23
- Girls	17	77
- Total	22	100
- Government	6	27
- Non-government	16	73
- Total	22	100
Students Who Mentioned Addiction		
- Boys	5	100
- Girls	14	82
- Total	19	86
- Government	5	83
- Non-government	14	88
- Total	19	86

Of the 22 interviews on general issues relating to cigarettes and smoking, 19 (86%) resulted in unprompted discussions about addiction (three girls did not raise the issue of addiction). Five (83%) of the students who discussed addiction were from government, while fourteen (88%) were from non-government schools. Table 3.3 presents an overview of this sample.

The following sections report the concepts of smoking addiction of these students.

### **3.3.2.1 What is addiction?**

Addiction was a relevant and significant issue that many of the respondents associated with cigarettes and smoking. Respondents typically perceived addiction as a direct and negative consequence of smoking that made smoking ‘hard or impossible to give up’ and smokers ‘lose control’.

Some explained addiction as:



*“Getting used to it [i.e. cigarettes and smoking]” and then “when they [smokers] try to give up they can’t” (female), and*

*“[When] they don’t have it [cigarettes] then they feel they need it” (male).*

In general, young people saw addiction as when:

*“You can’t stop yourself [smoking]” (female).*

Notwithstanding the simplicity of this explanation, young people understood that addiction was a complex phenomenon. None believed that addiction was a natural or automatic consequence of smoking. Rather, respondents saw addiction as involving a psychological component that necessarily preceded a later physical or physiological one:

*“At first you may get addicted to the feeling when you first start... the feeling of relaxation... and so then you want to keep doing it for that and then maybe one or two years of doing it, then you get properly addicted to it and you won’t be able to stop without going through a lot of pain” (female), and*

*“I think you get more addicted after 1 or 2 packs just to doing it and to the feeling of having a cigarette and the relaxation but I don’t think you’d be... after 1 or 2 packs... to be totally addicted that you couldn’t stop” (female).*

In most instances, respondents saw addiction as evolving from social interactions or a need to smoke cigarettes around other people. This appeared especially relevant in discussions about young smokers:

*“[When people offer you cigarettes at parties and such], you can’t say no and so you continue to have one or two cigarettes regularly and that’s how you become addicted” (female).*

The recognition of this social aspect of cigarette smoking produced a cynicism in some of the respondents about whether young smokers were in fact addicted:

*“Young people, I think they try to create the image that they can’t stop... like they just do it to try and look good in front of other people... like they can stop it... they haven’t been doing it that long to not be able to stop” (female), and*

*“If they did it alone they would probably be addicted to it or whatever but doing it in groups isn’t addicted you know they’re not addicted to it so it’s more an image thing and it’s really quite pathetic really” (female).*

Even so, young people recognised that addiction was a concern because it perpetuated smoking behaviours and had serious consequences in respect of smoking cessation:

*“People start smoking... not really thinking about what’s going to happen... you know thinking: ‘Oh no I’ll quit, I’m not going to get addicted to it’ and the whole thing that it’s not going to happen to me” (female);*

*“It’s very, very hard [quitting] because they [smokers] become so used to it... it takes a huge effort to be able to stop smoking” (male), and*

*“My mum smokes and she’s tried to quit about five times and she can’t do it... it’s very hard... I can sort of understand cause if you’re addicted to something and you feel that you need it, it’s hard to get off it... it’s almost impossible to get off it” (male).*

For one respondent however, smoking cessation was perceived to be less problematic:

*“My dad [started smoking] when he was really young... but he’s managed to quit like whenever he’s wanted to... he managed to quit smoking on and off for a few years” (male).*

### **3.3.2.2 Nature of addiction**

Respondents generally believed that it was easy to become addicted to cigarettes. Although most had clear ideas that it was something in cigarettes that caused addiction, pharmacological explanations were not the dominant reasons offered to explain smoking addiction. Instead, respondents identified the social nature of smoking – that is, smoking with groups of friends and smoking at parties – as providing the motivation to initiate and maintain a smoking habit.

As discussed in the previous section, respondents believed that, especially for young smokers, addiction evolved from social interactions and the desire to smoke around others. This social aspect made smoking addiction an insidious process that generally happened without smokers being consciously aware of it:

*“[People] might try it [cigarettes] for the first time and then go: ‘This is all right!’ and they might have it at parties and then they’ll have it when friends come over and they’ll start doing it all the time and it becomes addictive” (female).*

With respect to pharmacological explanations, some respondents were vague about what actually caused addiction:

*“It’s got something in it that’s addictive” (female), and*

*“There’s something in it that make you addicted, sort of like if you get addicted to coffee and it’s got caffeine in it like that” (female).*

One respondent thought that addiction was related to cigarette smoke and the smell of smoking:

*“People smoke because many times their parents smoke and they get that smell and the passive smoking [and] they get addicted to the smoke as well so they just smoke as well”* (female).

Some respondents however, identified the role of nicotine in relation to smoking addiction:

*“It’s the nicotine, you get addicted to it and then you need it”* (female), and

*“I think that after a long period of time you’d become addicted to it but they just kept on taking one just kept on saying I won’t get addicted to it ’til eventually the nicotine in the cigarette is really what makes them keep coming”* (male).

Nicotine was seen to produce physical effects that respondents articulated as a craving:

*“I think the nicotine in the cigarette you have actually a physical craving for it... you become so dependent on it to help you... your body needs it to go through days so you do become addicted... your body gets used to having this extra thing that it depends on”* (female);

*“[When you smoke] eventually the nicotine is the craving part of the cigarette, it’s what you get addicted to, the nicotine not really the smoke, and it becomes part of your system so when you don’t have the nicotine, you get a craving for it and that craving results in you taking more and more smoke”* (male), and

*“[You smoke] because nicotine is addictive, generally it gives you a high and when it eventually gets into your blood, people find that they can’t feel normal without it eventually because they’re so used to having that little high kick in to wake them up”* (female).

### **3.3.2.3 Onset of smoking addiction**

As for younger respondents, addiction onset was conceptualised as either a function of quantity (the number of cigarettes smoked) or a function of time (the number of days, weeks or months of smoking). However, older respondents also considered the regularity of smoking to be a contributing factor.

Some respondents thought that it took only a few cigarettes to cause addiction:

*“I suppose after three cigarettes you can get addicted, I know some guy in school... he took like one cigarette and when I asked him, he says he’s addicted so yeah you definitely can [get addicted easily]”* (male), and

*“Well, like a few... three or four [cigarettes to become addicted]”* (female).

Others believed that a greater number of cigarettes were needed:

*“It would have to be about half a packet or something”* (female), and

*“Like 10... 20... 30 [to get addicted]”* (male).

More frequently however, respondents discussed addiction onset as a function of time:

*“I don’t think you could get addicted after inhaling a packet but I think after a period of time [you could]”* (male).

The period of onset was believed by some to occur within weeks or months:

*“After maybe a week or two”* (male), and

*“Maybe a couple of weeks or a month then eventually you’ll start getting the craving for it”* (male).

However, others believed addiction to be a gradual and long term phenomenon of cigarette smoking:

*“[Addiction takes] years, probably up to six good months onwards”* (female);

*“I think that after a long period of time you’d become addicted to it”* (male), and

*“Maybe one or two years of doing it [smoking] then you get properly addicted to it”* (female).

Importantly, neither quantity nor duration alone was expected to produce addiction and some of the respondents believed that a major element of regularity – how closely cigarettes were repeatedly smoked – was required before addiction could occur:

*“It depends on how long you’ve been smoking and if you smoke everyday or weekly”* (female);

*“I think you have to do it quite regularly before it will really get addictive like... if you just keep doing it, keep having cigarettes over and over again”* (male);

*“[Addiction happens] if you’re continually doing it”* (female), and

*“I suppose it varies for different people cause some people just can smoke socially on the weekends and maybe that can lead to a full time addiction but maybe after a pack of cigarettes you become addicted it depends on how closely you smoke them I suppose”* (female).

This concept of regularity was seen by some to be crucial, without which smoking dependency was unlikely to occur:

*“[If you smoke] and stop after a month, I doubt if you’ll be addicted”* (female), and

*“I don’t think it happens after one or two [cigarettes], I think you have to do it quite regularly before it will really get addictive... if you keep having cigarettes over and over again... then eventually you’ll start getting the craving for it, you feel that you need to have it to keep going”* (male).

For some respondents, these views created perceptions that smoking addiction was deserved:

*“I’d say it’s self-inflicted if you do get addicted”* (female).

### **3.3.2.4 Intentions to trial cigarettes**

Generally, young people in this group had negative attitudes toward cigarettes, smoking and smokers. This negativity ranged from philosophical indifference to the smoking behaviours of others:

*“I sort of do hate it but I can live with it”* (female), and

*“I’m not very negative because if people smoke, I think that’s their choice and that’s absolutely fine but I said I wouldn’t... I’d never do it like take it up as a habit”* (female),

to moral outrage:

*“[Kids smoking] is disgusting to be honest, first of all I hate the smell of smoking, I can’t stand the smell of smoking... I don’t understand why they would want to harm their body... I just think it’s disgusting to see them smoking... they’re just ruining their bodies... they’ve got such a future and they’re just ruining it”* (male),

*“I’m just thinking they’re wasting their life, they could be doing other things like going out, exercising, have more fun not just smoking all the time sitting down”* (male).

None of the respondents who expressed this strongly negative attitude, (including those who had tried smoking and those who were ex-smokers) said they intended to become smokers in the future.

However, some current non-smokers declared intentions to experiment with cigarettes and intentions to try smoking. Common to this group was the idea that addiction onset happened only with regular or continued smoking together with smoking a considerable number of cigarettes over a period of time.

For these young people, stating intentions to try cigarettes did not appear to conflict or contradict their more general anti-smoking attitudes:

*“[I] probably [will try smoking] but I’ve always said that I don’t want to smoke”* (female), and

*“I might try it [smoking] but I don’t see it as something I need like I don’t need it to live or anything”* (female).



The reasons these respondents gave for intending to trial smoking were similar to those given by young people who had tried smoking:

*“Yeah I’ve tried [smoking], I haven’t had a whole cigarette, I’ve had a few puffs... you see millions of people smoking... I just want to see what it was... like I knew I wasn’t going to take it... I wasn’t doing it to be cool”*  
(male);

*“Yeah I have [tried smoking]... I didn’t really like it because it hurt my throat [but] we want to say we’ve tried it”* (female), and

*“[I tried smoking] once but I didn’t like it... I was with a friend and we just wanted to see what it was like... just more out of interest and I even hate smoking and the smell of smoke... but it’s just curiosity I suppose... what it’s like and you see so many people do it and you wonder why”*  
(female).

Many respondents with no intentions to trial smoking viewed addiction onset as a function of regularly smoking a significant number of cigarettes over a relatively long period. However, a small number who were committed to never trying or experimenting believed that addiction onset could happen after smoking only a few cigarettes or a few times.

### **3.3.3 Smoking addiction and health**

Many of the respondents interviewed in the qualitative study appeared knowledgeable about the health consequences associated with smoking and could articulate specific illnesses linked to smoking. However, health and illness issues appeared in many cases, to be removed from discussions relating to addiction – that is, respondents did not generally describe health and smoking addiction as inter-related concerns.

This was observed especially in the discourse of younger respondents (i.e. students aged 10 years in Year Five of primary school) where addiction was primarily associated with a sense of helplessness from not being able to stop smoking and the loss of control or autonomy:

*“You get addicted [and] you can’t really stop [smoking]... you try all these things and it just doesn’t help”* (female), and

*“My friend’s dad, he smokes and he’s been smoking for 10 years but he’s taking those Nicorettes (sic) and everything and he’s trying very, very hard but it’s quite hard [to stop]”* (female).

For some of the younger respondents, the link between addiction and smoking uptake (and in turn, intentions and decisions to smoke) was therefore more salient than a link with health and illness although some extended the idea of not being able to stop smoking to an eventual health and illness consequence:

*“You’ll keep on going [i.e. smoking] and then you might die”* (female), and

*“They get addicted to it [i.e. smoking], their body (sic) can’t stop having them so they keep on having them and then eventually they could die ’cause they keep on having lots of cigarettes”* (male).

Similarly, older respondents primarily associated addiction with not being able to stop smoking. Discussions on addiction broadly covered how nicotine and non-specific ‘chemicals’ in cigarettes caused dependency and craving in smokers, and what implications being ‘hooked’ had for smoking cessation:

*“The main reason why people keep on smoking is ’cause it’s addictive and to stop that, you have to be really strong and you have to like really be adamant that you want to stop that you want to quit smoking and that’s really hard. I know my Dad’s really good friend quit smoking and a few*

*months later, he started back now. It just proves how hard it is to quit smoking really”* (male), and

*“[When you’re addicted] you won’t be able to stop without going through a lot of pain”* (female).

Again, addiction and health did not appear to be corresponding concerns and only infrequently were the two topics jointly discussed. Only one respondent in the older group directly articulated not being able to stop smoking with a health concern:

*“[If] you’re addicted and you smoke like 30 cigarettes a day and you don’t stop, you’re going to die within 10 years”* (male).

### **3.4 Discussion**

Addiction, also called ‘habit’ or ‘don’t want to stop’ by the younger respondents, was a salient smoking-related issue for the majority of young people in this study. Seventy percent of primary school respondents aged 10 years and 86% of secondary school respondents aged 15 years independently raised the issue of addiction without prompts or suggestions from the interviewer in discussions on cigarette smoking. Importantly, these young people identified addiction as a negative consequence of smoking behaviour and were generally fearful of being addicted. This contrasts with Rugkasa, et al’s (2001) findings that the issue of tobacco addiction was perceived by young people to be primarily an adult phenomenon that had little relevance to childhood smoking.

Overall, respondents did not appear to see health and smoking addiction as inter-related concerns. Typically, respondents saw health as a relevant concern in the broader context of smoking cigarettes and often cited specific illnesses as reasons to not smoke. Younger respondents in particular, expressed strong beliefs that smoking was harmful to health. In respect of smoking addiction however, the

primary concern was on not being able to stop smoking. Older respondents (i.e. Year Ten secondary school students) perceived this to be a problem particularly for smoking cessation (i.e. not being able to quit smoking because of being addicted to smoking). For some of the younger respondents, addiction concerns appeared to be non-specific and related simply to addiction per se. For others, there was a fear that addiction would cause smokers to be unable to resist cigarettes and to therefore lose or have no control ('you just can't stop doing it').

With respect to the nature of addiction, those in the younger group did not appear to properly understand the actual nature of this addiction. Only one respondent identified that nicotine in cigarettes caused addiction, and one other had some notion that a drug 'hidden' in cigarettes and deposited in the smoker's lungs when smoked cause people to have cigarette cravings. The remainder of the younger respondents thought of addiction as resulting from liking the taste of cigarettes. This was comparable to their own enjoyment of chocolates and other sweets, soft drinks, fast food, TV programs and video games. The significance of this conceptualisation of addiction was that some younger respondents believed that experimenting or trying cigarettes was safe (i.e. addiction could be prevented or avoided) and therefore acceptable as long as they did not smoke enough to enjoy the experience and get to like how cigarettes tasted.

Older respondents, generally, articulated a link between nicotine and the addictive nature of cigarettes. These respondents described nicotine as producing physical cravings in smokers that perpetuated smoking behaviours. Interestingly, nicotine was frequently associated with smoking cessation (and making quitting very difficult) but infrequently associated with the onset of addiction. Typically, adolescent smokers were seen to become addicted from smoking too many cigarettes at too many social occasions.

This observation highlighted that respondents perceived the origin of addiction as more than just pharmacological – nicotine was the addictive substance in cigarettes that led to addiction but social occasions facilitated the doses needed to

become addicted. This social element or backdrop was especially important for addiction onset since adolescent smoking was viewed as primarily a social phenomenon.

Respondents in the present study clearly differentiated between trial or experimental smoking and 'regular' or 'real' smoking. Although many had very negative views on smoking and smokers, and were adamant that they would not take up regular smoking or become habitual smokers, some respondents nevertheless expressed an intention to try smoking. For these respondents, stating such an intention did not appear to contradict their more general negative attitudes against smoking. They simply wanted to satisfy their curiosity about the smoking experience. Primarily, this involved 'just seeing' what cigarettes taste like and what it feels like to smoke. For older respondents, social factors were seen as important in motivating such intentions.

For the younger respondents, beliefs regarding how quickly addiction ensued and whether addiction could be avoided or prevented appeared to be closely linked with intentions to experiment with cigarettes. Typically, those who perceived addiction onset to be immediate were uncompromising in their decisions against cigarette trials. Conversely, those who believed that addiction onset was delayed (i.e. did not occur immediately) saw a window of opportunity to smoke 'safely' (i.e. to smoke without becoming addicted), and were hence tempted to see what smoking was like. Some respondents stated that they would experiment because they believed that addiction onset could be deliberately avoided or prevented by not liking the taste of cigarettes and not enjoying smoking.

In contrast, with the older respondents, intentions to try smoking did not appear to correspond as strongly with their ideas about addiction onset. This was primarily because addiction onset was seen as a relatively complex and extended process that required persistence or regularity of smoking in social situations. For this group of respondents, the association between perceptions of smoking addiction and smoking intentions was more apparent in respect of intentions to smoke

regularly or habitually where the fear of not being able quit because of being hooked appeared to be important.

### **3.5 Limitations**

The results and findings reported in this chapter were obtained from individual interviews with sixty-eight respondents and it is important to note two limitations arising from this.

First, the sample was relatively small and comprised 46 primary and 22 secondary school students (total = 68 students) drawn from seven urban schools located in Perth, Western Australia. The ages represented by this sample were 10 and 15 years, which correspond to Year Five and Year 10 school levels respectively. And the sample included significantly greater numbers of girls (49) than boys (19). Overall, these sample characteristics suggest that the views elicited in the interviews may not be representative of the broader population of young people, which therefore limits the generalisability of findings derived here.

Second, the study was a qualitative investigation of young people's conceptualisation of smoking addiction. Results and findings were hence founded on respondents' subjective perceptions of the topic and on the researcher's subjective interpretation of these perceptions. Additionally, some differences have been found in studies comparing young people's answers provided anonymously (e.g., through a self-administered instrument) and those provided 'face-to-face' to interviewers with greater differences being more likely with respect to sensitive behaviours such as youth smoking (Moskowitz, 2004).

In spite of these limitations however, the in-depth data provided by the current study provide a useful starting point for further research into this neglected area of youth tobacco control. Deshpande (1983) argued that a qualitative grounding is an essential beginning for theory development and for the construction of hypotheses and models. This is often achieved through an interpretive process of "what

people say” and “how people interpret their world” (Deshpande, 1983, p.106). In this respect, findings from the present study provide broad insights into how young people understand smoking addiction and how this understanding appears to influence young people’s smoking-related decisions. These insights will be used in the development of the next phase of study reported in the following chapter.

### **3.6 Summary**

The present chapter described the qualitative investigation into young people’s conceptualisation of smoking addiction. Two groups of respondents aged 10 and 15 years in Years Five (primary school) and Ten (secondary school) were interviewed to explore young people’s ideas about smoking addiction. Objectives and the method used in this exploration were presented together with results of the investigation. Significant findings were discussed and a consideration of the study’s limitations was offered.

The conceptions of addiction identified in this chapter will form the basis for the next phase of enquiry into whether and how young people’s beliefs about smoking addiction are associated with intentions to smoke. This is presented in the next chapter.

## **Chapter FOUR: METHOD OF MAIN STUDY**

---

This chapter presents the methodology used in the main study of young people's conceptualisation of smoking addiction. Hypotheses are stated relating beliefs about smoking addiction to young people's smoking-related intentions. The theoretical framework linking beliefs with intentions is described. Methodological issues are explained relating to population and sample, sample size and sampling procedure, the construction and trial of the primary data collection instrument, the data collection process and study limitations. Finally, the methods used in data analysis are presented.

### **4.1 Introduction**

The focus of investigation in this main quantitative study relates to key findings from the previous chapter suggesting that young people's conceptualisation of addiction to smoking appears to influence attitudes and intentions (of non-smokers) toward initiating cigarette smoking.

Broadly, young people seemed to have concerns about becoming addicted to cigarettes and smoking. A dominant aspect of this concern was the perceived loss of personal control or autonomy attributed to addiction. In some young people, this addiction concern appeared to produce a protective effect by reducing desires or intentions to smoke cigarettes. The extent of this effect however, seemed to be



mitigated by beliefs about the nature and onset of smoking addiction. Thus, young people's stated intentions to smoke cigarettes increased if they perceived that, under certain conditions, smoking could be undertaken without becoming 'hooked'. As a further complication, young people (non-smokers) appeared to differentiate between experimentation (or trial) and regular smoking, and their intentions to experiment did not mean they intended to become regular smokers.

These key issues shaped the overall focus of the present study.

## **4.2 Theoretical framework**

The focus of the present study on young people's conceptualisation of smoking addiction and on associations between conceptualisations (i.e. beliefs) about smoking addiction and smoking-related intentions is based on the social cognition approach to understanding health behaviour.

Within this theoretical framework, cognitions or thoughts are seen as the processes that regulate health (and other) behaviours (Conner & Norman, 1996). Broadly, behaviours result from a rational decision-making process that compares the expectations of benefits against the perceived costs or consequences of competing behaviours (Strecher & Rosenstock, 1997). The process is rational to the extent that the operation is systematic and deliberate, and draws on all available information (Conner & Norman, 1996). Rooted in the subjective expected utility theory, the social cognition approach assumes that behavioural outcomes are selected based on expected benefits being greater than perceived costs or consequences (Conner & Norman, 1996).

Models within this framework generally explain health behaviours by exploring attitudes and beliefs since these cognitive factors are seen to influence perceptions and expectations of behavioural outcomes (Adams & Bromley, 1998). Major models such as the Health Belief Model (Janz & Becker, 1984), the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Theory of Planned Behaviour

(Ajzen, 1988), Protection Motivation Theory (Rogers, 1983) and Self-efficacy Theory (Bandura, 1986) – collectively known as expectancy-value models of behaviour (Hine, Summers, Tilleczek, & Lewko, 1997) – variously incorporate attitudes and beliefs as key determinant components in the understanding and predicting of health behaviours (Maddux & DuCharme, 1997).

Additionally, an important cognitive component in most of these models and theories (excluding HBM), and included in stages of change models such as the Transtheoretical model (TTM) (Prochaska, DiClemente, & Norcross, 1992) and the Precaution Adoption Process model (Weinstein, 1988) is behavioural intention (Maddux & DuCharme, 1997). Behavioural intention represents a resolution “to exert effort to perform [a particular] behaviour” (Higgins & Conner, 2003, p.174). Ajzen (1991, p.181) described intention as capturing the “motivational factors that influence behaviour”.

In simple terms, understanding and predicting health behaviours are predicated on knowing an individual’s intention to perform a particular behaviour. In turn, intention itself can be determined by knowing the individual’s attitudes toward, and beliefs about that behaviour (Maddux & DuCharme, 1997). This conceptual relationship between attitudes, beliefs, intentions and behaviour thus provides the framework within which the present study is based.

### **4.3 Research hypotheses**

Hypotheses were developed with the overarching objective to explore young people’s conceptualisation of smoking addiction, and the relationship of this with intentions to smoke cigarettes (dependent variable). To reiterate, qualitative findings reported in the previous chapter provided the basis for all hypotheses.

With respect to smoking intentions, non-smokers in the qualitative study appeared to differentiate between intentions to try smoking and intentions to become a regular smoker. A key difference is that intentions to ‘try’ relate to trial or

experimental smoking that is undertaken ‘just to experience or see what smoking is like’. Trial smoking is typically expected to be short-term. By contrast, intentions to become a regular smoker relate to smoking that is non-experimental, habitual and persists into adulthood.

As discussed in the previous chapter, non-smokers who stated intentions to try smoking typically had no intentions to become regular or habitual smokers. Key dependent variables for the present quantitative study were therefore stated as:

- Intentions to try smoking (short-term)
- Intentions to become a regular smoker (permanent)

Research hypotheses are presented as follows:

### 4.3.1 Non-smokers

#### ***H1 Smoking without becoming addicted***

It was hypothesised that non-smokers’ intentions to engage in smoking trials will increase with increased perceptions that trying smoking is possible without becoming addicted.

#### ***H2 Loss of control***

It is hypothesised that issues of control will be more dominant for non-smokers than for current smokers – i.e. non-smokers will express more concern about ‘having no control’ from being addicted to smoking.

#### ***H3 Avoidance strategies***

It is hypothesised that for non-smokers, intentions to try smoking will be positively correlated with beliefs in avoidance strategies that stop or prevent addiction – viz. deliberately not enjoying smoking and deliberately not liking the

taste of smoking will increase non-smokers' intentions to engage in smoking experiments or trials.

#### ***H4 Addiction concerns***

It was hypothesised that for non-smokers, smoking intentions will be negatively correlated with concerns about becoming addicted.

### **4.3.2 Current smokers**

Although qualitative findings presented in the previous chapter related to non-smokers, hypotheses were also developed in relation to current smokers' conceptualisation of smoking addiction and the correlation of this with smoking intentions.

With respect to the dependent variable, intentions to smoke cigarettes, it was anticipated that current smokers might differentiate between short- and longer-term smoking. Australian state and national ASSAD studies into youth smoking typically measure intentions to smoke cigarettes by asking students how likely they are to smoke in one year or 12 months' time (see for example: (Fairthorne, Hayman, & White, 2003; White & Hayman, 2004c). Dependent variables for the present study were therefore stated as:

- Intentions to continue smoking in the next year (short-term)
- Intentions to still smoke when grown up (long-term)

As for non-smokers, it was expected that current smokers who state positive intentions to continue smoking in the short-term may not necessarily intend to continue smoking regularly into adulthood.

The following hypotheses are stated in relation to young people in the sample who are current smokers:

### ***H5 Addiction concerns (I)***

It was hypothesised that for current smokers, intentions to continue smoking in the next year will be negatively correlated with concerns about becoming addicted.

### ***H6 Addiction concerns (II)***

It was hypothesised that for current smokers, intentions to still smoke when grown up will be negatively correlated with concerns about becoming addicted.

## **4.4 Methodology**

The present study was a cross-sectional survey designed to explore young people's conceptualisation of smoking addiction and the association of this with young people's smoking-related intentions. Conceptualisations of smoking addiction and intentions to smoke cigarettes were collated from self-administered questionnaires given to primary and secondary students to complete during class in school. The following sections describe the methodological issues relevant to this exercise.

### **4.4.1 Sample selection**

All government and non-government school students in Western Australia in Years Four to Ten were the target population (N) for the questionnaire survey. The selection of this target population follows the Australian Secondary School Students Alcohol and Drug (ASSAD) national surveys on youth smoking (White & Hayman, 2004c), youth alcohol use (White & Hayman, 2004a), and youth over-the-counter and illicit substance use (White & Hayman, 2004b) which survey only school-based populations. The advantages of surveying students in schools are that they constitute a convenient and representative sample (schooling is compulsory in all States and Territories for all children until age 15 (Department of Immigration and Multicultural Affairs, 2005)). In addition, surveys conducted

in classrooms are less likely to be affected by problems of response honesty compared with, for example, home surveys where the presence of parents may influence the veracity of responses particularly those relating to various substance use (Borland, 2006).

In the present study, mainstream primary and secondary school students in the metropolitan Perth area, specifically, boys and girls aged 10 to 15 years in Primary Years Four, Five, Six and Seven, and Secondary Years Eight, Nine and Ten were identified as target samples (n).

#### **4.4.2 Sample size**

A minimum sample size of 894 respondents was set for the present study. This included 384 primary and 510 secondary school students, (96 students each from Years Four to Seven, and 170 students each from Years Eight to Ten). Sample sizes were determined as follows:

For primary school sample sizes, these were individually calculated for each of the targeted school years (i.e. Years Four, Five, Six and Seven) based on a 95% confidence interval and an accepted margin of error of 0.10. These parameters provide 95% confidence that data collected in the study will closely reflect (within a 10% precision level) 'true' population values. Given the exploratory nature of the present study, the parameters selected were judged to provide an acceptable level of precision and confidence in outcomes obtained. As a comparison, national surveys of smoking and alcohol behaviours among Australian school students (ASSAD) apply a 95% confidence level with a margin of error of 0.07 (Fairthorne et al., 2003).

Table 4.1 provides sample size determinations for the number of students (n) needed to be sampled at each school year based on: the total number of students (N) in Western Australian schools in respective school years; a 95% confidence level and an accepted margin of error of 10% (for comparison, sample sizes are

also shown for a 95% confidence level and accepted margins of error of 7.5% and 12.5%). Population estimates of student numbers by school year were obtained from the latest figures at the time published by the Department of Education (Western Australia).

From the table, a sample size total of 384 primary school students or 96 students each from Years Four, Five, Six and Seven satisfied the criteria established for the present study and was therefore set as sample requirements in relation to the sampling of primary school students.

*Table 4.1  
Sample Size Determination*

School Year	Population Size (N) <sup>a</sup>	Margin of Error		
		.075 Sample Size <sup>b</sup> (n)	.10 Sample Size <sup>b</sup> (n)	.125 Sample Size <sup>b</sup> (n)
Year Four	27563	170	<b>96</b>	62
Year Five	27202	170	<b>96</b>	62
Year Six	28308	170	<b>96</b>	62
Year Seven	27772	170	<b>96</b>	62
		680	<b>384</b>	248
Year Eight	27881	<b>170</b>	96	62
Year Nine	27514	<b>170</b>	96	62
Year Ten	28188	<b>170</b>	96	62
		<b>510</b>	288	186

Based on a 95% confidence interval (i.e. alpha level = .05). Population size N is the number of students in WA schools; sample size n is the number of students needed to be surveyed under different margins of error.

<sup>a</sup> Department of Education (Western Australia) (2001)

<sup>b</sup> Raosoft (2004)

For secondary school sample sizes, these were also individually calculated for each of the targeted school years (i.e. Years Eight, Nine and Ten) based on the total number of WA students in each secondary school year (N). Applying the above parameters of 95% confidence level and a margin of error of 0.10, a sample size (n) of 288 secondary school students or 96 students each from Years Eight, Nine and Ten would have been adequate (Table 4.1). However, a significantly larger total sample of 510 students or 170 students from each secondary school year (95% confidence level, 0.075 margin of error) was taken instead. This was deemed necessary in order to increase the potential number of secondary school

students who smoked who might be sampled in the study and thus allow data to be statistically analysed for smokers as a group.

For the sampling of primary school students, a larger sized sample was not taken because it was unlikely, given the low rates of smoking prevalence generally in primary school students, that resource limitations would have enabled a statistically viable sample of smokers to be obtained. This issue of the number of smokers in primary and secondary school levels is further discussed under limitations of the study (Section 4.6.1).

### **4.4.3 Sampling procedure**

A quasi-probability sampling was used for the present study to locate and recruit schools from which students in the targeted school years would be surveyed. The procedure followed that of simple random sampling and involved only one stage of sample selection: sample units (i.e. schools) were randomly drawn from a sampling frame and students in the targeted school years (i.e. Years Four to Ten) from those schools were selected to be in the study (Zikmund, 1997). In contrast to more complex sampling strategies such as a two-stage probability method used in, for example, ASSAD studies to obtain a nationally representative sample (i.e. first, schools are randomly selected and then students within those schools are also randomly selected), the present method was judged as appropriate in light of the exploratory nature of the research into young people's beliefs about smoking addiction.

The target sample was defined above (see: Section 4.4.1) as students in schools located in the metropolitan Perth area and the Perth White Pages telephone directory was selected as the sampling frame since it provided the most comprehensive listing of schools in the greater metropolitan Perth area. The Perth White Pages directory lists all schools according to school-type. Listings are categorised as government or non-government and within these, schools are sub-categorised as primary or secondary schools.



In the present study, schools within each of the listed categories (i.e. primary and secondary government, primary and secondary non-government) were selected at random and approached with requests to participate in the present study. Active consent from school principals, teachers and parents to allow the survey, and active consent from students to participate in the survey was requested and received to satisfy ethics procedures. Approval of the study was also requested and received from the Executive Director of Schools, Education Department of Western Australia prior to contact with the schools.

In total, eighteen schools were approached from which eight agreed to participate in the study. Due to scheduling and curriculum constraints, six were used in the current study. The composition of the six schools included one primary and one secondary school each from government and non-government sectors. Four schools were mixed sex or co-ed schools while two were all-girl institutions.

From these schools, whole classes of students in the targeted school years – viz. Primary Years Four, Five, Six and Seven, and Secondary Years Eight, Nine and Ten – were progressively sampled to achieve the desired sample size.

#### **4.4.4 Research instrument**

The research instrument used in the present study was a self-administered ‘paper-and-pencil’ questionnaire. Presented as a booklet, the full questionnaire comprised a total of 35 main questions of which respondents were required to answer either 26 or 31 questions based on classifications of smoking status (i.e. non-smokers or current smokers respectively).

For question structure, a combination of three different formats was chosen. A simple multiple-choice format was used for 30 of the main questions. A choice of two to nine multiple-choice answers or responses was provided with each question and student respondents indicated their selection by ticking a box next to

the most appropriate option. A ranking format was used for four of the main questions. A list of ten items was provided and students selected and then ranked items according to different stated criteria (described below). For the remaining one question, students wrote a short answer in response to a short question.

Overall, this combination of question structures was judged to be the most straightforward and easy to complete. Large casual fonts, generously spaced questions and other visual techniques were also used to improve the overall readability of the questionnaire and facilitate ease of completion. These strategies were deemed necessary to accommodate the younger respondents, increase the potential rate of completed returns and generally minimise the time disruption to normal class lessons since questionnaires were to be completed by students in class during school hours.

A brief overview of questions included in the questionnaire is reported below while full questions and the actual layout of the instrument as presented to students are shown in Appendix 4.1.

#### ***4.4.4.1 Question development***

The goal of the present study was to understand how young people conceptualised addiction to smoking and, to also investigate potential associations between ideas about smoking addiction and young people's smoking-related intentions. Broadly, beliefs are the building blocks of both conceptions and intentions: conceptions or ideas about smoking addiction are defined by the sum of an individual's subjective beliefs about smoking and addiction. In relation to smoking-related intentions, these are largely determined by attitudes which in turn, are functions of an individual's subjective beliefs. In question development therefore, a focus on young people's subjective beliefs about smoking addiction was taken.

Themes previously examined in the qualitative chapter such as the meaning, nature and onset of smoking addiction provided a general framework for how questions were developed. Detailed findings from that chapter relating to young

people's addiction concerns, perceptions of smoking, beliefs about opportunities to smoke cigarettes without becoming hooked, addiction avoidance and quitting provided more specific ideas around which questions were structured. A further basis for question development was how different questions, taken in relation to each other, would enable associations to be made between specific beliefs about addiction and young people's intentions to smoke cigarettes, and hypotheses to be tested.

Broadly, questions in the present study can be divided into the following categories:

#### *Conceptualisation of addiction in general*

Questions under this category were developed to examine young people's conceptualisation of smoking addiction vis-à-vis other addictions. In qualitative interviews reported earlier, young people cited a range of items in comparative terms when discussing smoking addiction. The main objective here was therefore to determine the basis of this comparison to better understand how young people perceived, not just addiction to smoking, but addiction generally.

A list of ten items was compiled from products, activities and substances that young people in the interviews frequently compared to smoking addiction. The list comprised: (1) alcohol, (2) drugs, (3) chocolates, (4) cigarettes, (5) fast foods, (6) gambling, (7) playing sports, (8) soft drinks, (9) watching TV, and (10) playing video games. Respondents were required to assess the items according to different measures of addictiveness. These measures included each item's addictive potential and addictive strength, addictive ease, addiction danger and how difficult it would be to stop or quit a particular addiction.

For addictive potential and strength, the question was divided into two sub-questions: the first sub-question was: '*for people who like these things, which can they get addicted to?*'. Against each of the ten items listed were the options: 'yes', 'no' and 'don't know'. The second sub-question: '*if 'yes', how strong can the*

*addiction be?*’ required respondents to indicate the strength of addiction of items judged capable of being addictive. A 4-point scale (‘*very strong*’, ‘*strong*’, ‘*weak*’ or ‘*very weak*’) was provided on which respondents marked their answer.

For addictive ease, difficulty in stopping and addiction danger, respondents were required to select and rank, from the given list of ten items, the top three items judged to meet these criteria. Thus, respondents were asked: ‘*for people who like these things, which do you think would be hardest to stop doing?*’, ‘*for people who like these things, which do you think would be easiest to get addicted to?*’, and ‘*which of these things do you think would be most dangerous to be addicted to?*’. Respectively, respondents were required to pick an item in relation to being: ‘*the very easiest to get addicted to is...*’, ‘*the next easiest to get addicted to is...*’, ‘*the third easiest to get addicted to is...*’; ‘*the very hardest thing to stop...*’, ‘*the next hardest thing to stop...*’, ‘*the third hardest thing to stop...*’; ‘*the most dangerous thing to be addicted to is...*’, ‘*the next most dangerous thing is...*’, and ‘*the third most dangerous thing is...*’.

#### *Conceptualisation of smoking and addiction*

Rugkasa, et al (2001) reported that children generally did not have realistic ideas about the nature of addiction to smoking or its relevance to young smokers. In their study, for example, children typically saw addiction as an adult, but not child phenomenon. While not discounting that young smokers can, as with adults, become dependent on smoking and cigarettes, Rugkasa et al. (2001) found that most children generally do not regard addiction as a central concern for young smokers. In the present study, questions under this category were therefore developed to explore how young people conceptualised addiction and what meanings they attached to smoking addiction. In particular, the perceived role of addiction in adult and youth smoking behaviour, how young people defined being addicted to smoking, what the perceived consequences of addiction were, and beliefs about why and when smoking addiction happens were explored.

For the perceived role of addiction in adult and youth smoking, four questions compared the relative importance that young people attributed to addiction in influencing the smoking behaviours of grown ups and children. Two of the questions were: *'what do you think is the single main reason that grown ups smoke?'* and *'what do you think is the single main reason that kids smoke?'*. Four similar multiple-choice responses were provided for both questions and students chose the most appropriate one. The responses were: *'mainly because their friends smoke'*, *'mainly because they are stressed'*, *'mainly because they want to look cool'*, and *'mainly because they are addicted'*. Two further questions in this group were: *'when grown ups say they are addicted to cigarettes, do you think it is mostly just an excuse so that they don't have to quit smoking or are they really addicted?'* and *'when kids say they are addicted to cigarettes, do you think it is mostly just an excuse so they can feel grown up or are they really addicted?'*. Identical multiple-choice responses were offered to students for both the questions. The responses were: *'it is just an excuse'* and *'they are really addicted'*. Respondents chose one or the other.

Definitional aspects of smoking addiction were explored in two ways; one through a focus on how young people defined being addicted to smoking, the second through a focus on what young people believed were the consequences of being addicted. In relation to the first, respondents were asked the following question: *'when you say someone is addicted to smoking, it mainly means that...'*. Seven multiple-choice responses were provided: *'they smoke automatically without thinking'*, *'they get used to smoking when doing things'*, *'they enjoy smoking'*, *'they have a craving to keep smoking'*, *'they like the taste of smoking'*, *'when they see people smoking, then they just want to smoke too'*, and *'they have no control over their smoking'*. For the investigation into perceptions of consequences, the following question was asked: *'what do you think is the single worst or most bad thing about being addicted to smoking?'*. For this question, six multiple-choice responses were provided from which respondents selected one: *'you smoke more than you want to'*, *'you get a craving in your body'*, *'you feel bad when you can't have a cigarette'*, *'you get in trouble at home for smoking'*,

*'you get in trouble at school for smoking', and 'you have no control over smoking'.*

Finally, perceptions of addiction occurrence were examined in relation to beliefs about why and when addiction happens. For addiction causes (i.e. why addiction happens), respondents were asked: *'what do you think is the single main reason people get addicted to smoking?'*. Six multiple-choice responses were offered from which one was to be selected: *'because cigarettes have a drug in them that makes people can't stop smoking'*, *'because people enjoy having cigarettes and so they don't want to stop smoking'*, *'because cigarettes have got nicotine in them and that makes people can't stop smoking'*, *'because cigarettes have got lots of chemicals and poisons in them that make people can't stop smoking'*, and *'because people get used to smoking when doing things'*. In relation to addiction onset, respondents were asked: *'when do you think addiction to smoking happens?'* and provided with the following multiple-choice selections: *'addiction happens when people smoke all the time'*, *'addiction happens when people smoke sometimes or occasionally'*, and *'addiction happens when people smoke just once'*. Respondents were asked to select one option.

#### *Perceptions of smoking addiction*

Questions in this section were developed primarily to explore the association between specific beliefs about smoking addiction and young people's intentions to smoke cigarettes. In particular, beliefs such as whether trying smoking was possible without becoming addicted, the extent of smoking needed to become 'hooked', whether addiction can be avoided and concerns about becoming addicted were investigated. These beliefs formed the focus of investigations because interviews with young people showed that intentions to try smoking appeared to depend, at least in part, on perceptions that addiction can be avoided or circumvented.

As a broad indication of whether young people believed that addiction was an inevitable consequence of smoking, non-smokers were asked the following

question: *'do you think you can try smoking without getting addicted?'*. Multiple-choice options provided from which respondents selected one option were: *'yes'*, *'maybe'* and *'no'*.

A separate question determined what young people believed was the extent of smoking required for people to become 'hooked' on cigarettes. This was stated as: *'whether or not you get addicted to smoking depends on...'*. Multiple-choice options provided were: *'depends on how many cigarettes you smoke'*, *'depends on how many times you smoke'* and *'depends on how long you've been smoking'*. Each multiple-choice option was accompanied by a sub-question which required respondents to quantify their answer in terms of number of cigarettes, number of times or length of time respectively. These sub-questions were phrased thus: *'how many must you smoke to get addicted?'*, *'how many times must you smoke to get addicted?'* and *'how long must you smoke to get addicted?'*. Respondents wrote their answers in blank spaces after each question. For this and the next question, the responses of both current and non- smokers were of interest. It was expected that associations could be made between answers to these questions and non-smokers' intentions to try smoking, as well as possibly current smokers' intentions to carry on smoking.

From interviews with young people, children in particular appeared to believe that addiction could be deliberately prevented through various avoidance strategies. This aspect of smoking addiction was hence explored by way of the following two questions: *'can you stop getting addicted by not letting yourself enjoy smoking?'* and *'can you stop getting addicted by not letting yourself like the taste of smoking?'*. Each question represented a specific strategy that young people in the interviews raised as possible ways of intentionally preventing addiction while smoking. The multiple-choice options provided for each question were: *'yes'*, *'maybe'* and *'no'*. The inclusion of responses from current smokers for these questions was to explore the possibility that present smoking behaviours may be sustained in these ways.

Concerns about becoming addicted were investigated in respect of both current and non- smokers' existing smoking-related behaviours. Non-smokers were asked: *'what do you think would be the single main reason that you don't smoke now?'*. Current smokers were asked a modified question: *'what do you think is the single main reason that could make you want to quit smoking?'*. Multiple-choice answers provided for both were similar except that non-smokers were given an extra selection option (i.e. too young to purchase now). The options were: *'I think cigarettes are too expensive'*, *'I'm too young to buy cigarettes now'*, *'I think smoking is bad for my health'*, *'I don't want to become addicted'*, *'my boyfriend/girlfriend doesn't want me to smoke'*, *'my brothers/sisters don't want me to smoke'*, *'my friends don't want me to smoke'*, *'my parent don't want me to smoke'*, *'my teacher/principal doesn't want me to smoke'*.

A second sub-question followed the above main questions which required both current and non- smokers to select an alternate or second reason from the same list of answers. The sub-question for non-smokers was: *'what would be another main reason that you don't smoke now?'* while for current smokers, the question was stated as: *'what is another main reason that could make you want to quit smoking?'*.

For both main and sub- questions, the development of multiple-choice alternatives reflected a combination of answers collected from interviews with young people and from a review of the literature, in particular, on the influence of accessibility of cigarettes on smoking uptake and on the influence of significant or referent others on smoking initiation.

### *Summary*

The sections above provided an overview of the research instrument used in the main quantitative study and a description of specific main questions (including purpose and development) that were contained within. As indicated in the discussions above, the development of the instrument or questionnaire was informed primarily by findings from the qualitative phase of the present research



(reported in chapter three). This was especially true in respect of multiple-choice responses for the majority of questions which were based on verbatim statements (sometimes grammatically incorrectly) made by children and adolescents in those interviews.

For discussion purposes, the sections above were divided into three broad categories and question development was explained in terms of common themes within each category. In the actual questionnaire distributed to students, these categories and themes were not revealed and questions were randomly arranged to reduce the possibility of order effects and other response biases.

#### **4.4.5 Questionnaire pre-test**

Two pilot tests were performed on the research questionnaire. The first was conducted to assess content or face validity. Zikmund (1997) defined this as the subjective agreement among professionals that a measuring instrument – the questionnaire – logically appears to measure what it was designed to measure. Content or face validity involves determining whether the ‘correct’ questions have been asked (Hair, Anderson, Tatham, & Black, 1995).

There are several ways that content or face validity might be evaluated. Cooper and Schindler (2001) suggested that a simple but adequate approach is to have an appropriate panel of people independently assess the items contained in the instrument for overall relevance with respect to the research objectives. This approach was used to judge the content validity of the questionnaire in the current study.

A panel of five qualified researchers was assembled to independently and separately evaluate the questionnaire. Goals of the research, hypotheses to be tested and respondents to be targeted were clearly detailed to each of the researchers prior to the evaluations. Some adjustments were suggested by the panel in respect of the questions included and omitted, words and phrasing of

items, the choice of options or answers provided, and the order in which items appeared in the questionnaire. These suggestions were taken into consideration and changes to the questionnaire were made. Notwithstanding these adjustments, none of the alterations was materially significant at a conceptual level and the panel independently and separately agreed that the questionnaire had good overall content validity.

The questionnaire was next tested to ensure that it could be readily understood and completed by the targeted respondents. A convenience sample of six young people aged 10 to 12 years was asked to individually complete the questionnaire. Selection of this test group was based on age considerations to ensure that respondents, especially those in the younger age groups, would be able to understand the nature of the questions asked and be able to select appropriate answers from the range of multiple-choice options provided in the questionnaire.

Each of the students in the test group was individually interviewed after completing the questionnaire. The interviews, each lasting between 40 minutes to an hour, examined every question from the viewpoint of the respondents. Students were asked to explain the questions, multiple-choice options and answer requirements (e.g. ranking, selecting from given choices or writing statements) to the interviewer. Students were also asked to explain the answers they provided.

Some changes to the instrument were effected because of this process. These related broadly to the words used, the way questions were phrased, the multiple-choice options provided, and the design of a cover page that would appeal to young people. None of the alterations however, was materially significant at a conceptual level.

The final questionnaire was 15 pages long and consisted of 30 multiple-choice questions (each with between two to nine answers to select), four ranking questions and one short answer question. Overall, the questionnaire required about 20 minutes to complete.

#### **4.4.6 Data collection protocol**

In the administration of the questionnaire, of foremost concern was that the responses collated should honestly reflect the personal beliefs of individual respondents. To minimise the possible influence of parents, teachers and peers, the questionnaire was administered to students in school during class. Respondents completed the questionnaires independently with no discussions or collaborations between students or interference by teachers. This was overseen by an independent field worker who had responsibility for the distribution and collection of the questionnaires in class. Any questions that students had in respect of the questionnaire were also directed to this person.

Before commencement on the questionnaire, students were assured of the confidential nature of the survey by the field worker. To ensure anonymity and confidentiality, names, student numbers and other means of identifying respondents were not recorded. Plain unmarked self-sealing envelopes were supplied together with the questionnaires and all completed forms were sealed in the envelopes and given directly to the field worker. These measures were deemed necessary to increase the honesty of responses especially in relation to questions about smoking behaviour for which current smokers might naturally be concerned that admission could bring about disciplinary consequences either at home or in school.

#### **4.5 Data analysis**

For data analysis, a combination of descriptive and inferential methods was used. Basic descriptive statistics such as frequencies and cross-tabulations were used to describe significant data findings while inferential statistics were used to test the hypotheses presented above.

With respect to inferential statistics, a key determination – and limitation – of the use of specific statistical techniques is the level at which data has been measured –

viz. nominal, ordinal, interval or ratio (Argyrous, 2002; Hair, Anderson, Tatham, & Black, 1998; Kachigan, 1986; Pagano, 2001; Zikmund, 1997). In the present study, data was primarily measured on nominal (also called categorical) scales although some ordinal (also called rank) level measurements were also taken.

Nominal level data is generally restricted to analysis by chi-square tests of independence – a non-parametric statistical technique which determines whether variables are related to, or whether variables are independent of, each other (Argyrous, 2002). This was the method used in much of the primary analyses. However, logistic regression was also used in relation to nominal data that were dichotomous to predict associations between independent (predictor) and dependent (outcome) variables (Field, 2003).

For ordinal level data, a combination of bivariate and multivariate techniques was used. Specifically, these were analysis of variance (ANOVA or F-test) and multivariate analysis of variance (MANOVA) (both of which are tests for the equality of means) (Argyrous, 2002), and factor analysis which identifies and separates common underlying dimensions in large variable sets (Hair et al., 1998).

In relation to the utilisation of multivariate statistical techniques in the present thesis, these generally require at least interval level data for appropriate use (Zikmund, 1997). However, ordinal level data can often be treated as interval level data and analysed as such (Bryman & Cramer, 1992). Labovitz (1970 in Bryman and Cramer, 1992, p.66) argued that since the error that can occur is usually minimal, ordinal variables ‘can and should be treated as interval variables’ on account of the ‘considerable advantages’ that accrue from being able to utilise more powerful statistical techniques that require at least interval level measurements. On this basis, ANOVAs, MANOVAs and factor analyses were therefore appropriate techniques for the present work. More detailed descriptions of testing procedures are provided in the following analyses and results chapters.

All statistical analyses were carried out using the SPSS (statistical package for the social sciences) software program (version 10).

In respect of the significance of results, the criterion used to determine statistical significance was a p-value of less than 0.05 (i.e. a 95% confidence interval level) in all analyses. While statistical significance was the main reporting criterion, results were also reported for findings that did not attain a critical p-value but which nevertheless were deemed to be of empirical significance.

## 4.6 Limitations

A number of limitations need to be mentioned in relation to the present study. These relate generally to issues associated with the study sample and to the analysis of data.

### 4.6.1 Smoking prevalence

Although approximately 17% of young people in Australia are reported to smoke cigarettes (White & Hayman, 2004c), smoking prevalence by age group is actually characterised by significant variability. Table 4.2 shows that smoking prevalence generally increases and decreases with the age of respondents. For example, the percentage of never smokers decreases from 73% for 12 year olds to 34% for 17 year olds, while the percentage of ever smokers (smoked in the past year) increases from 15% of 12 year olds to 45% of 17 year olds.

*Table 4.2  
Smoking Activity of Australian Secondary School Students x Age*

Smoking Activity	Age (Years)					
	12 %	13 %	14 %	15 %	16 %	17 %
Never Smokers	73	69	53	45	39	34
Smoked In The Past Year	15	18	31	37	42	45

(White & Hayman, 2004c)

Given that the age of respondents targeted in the present study is 10 to 15 years inclusive, there will be inherent difficulties in obtaining sufficient numbers of smokers in light of the low rates of smoking prevalence particularly in the lower age groups.

Where smokers are obtained, having small or insufficient numbers places limits on the number and type of analyses that can be performed on the data. In addition, since major Australian school studies do not include respondents younger than 12 years of age, it would be difficult to determine the representativeness of the study's overall sample.

#### **4.6.2 Reliability of self-reported smoking**

The reliability of self-reported smoking behaviour by young people being representative of actual smoking behaviour needs to be considered as a potentially limiting factor. This is especially so given that most of the research hypotheses have been stated in terms of non-smokers and current smokers' perceptions of smoking addiction.

Generally, smoking status is a measure that is difficult to assess (Henriksen & Jackson, 1999) and even though self-reports are the most widely used method of collecting data in smoking studies, concerns are commonly raised about the reliability of data obtained especially when the studies involve adolescents (Stanton, McClelland, Elwood, Ferry, & Silva, 1996).

Reliability may potentially be compromised as a result of respondent errors which may be unintentional or intentional in nature (Swadi, 1990). Unintentional response errors occur when young people misclassify their smoking behaviour (Stanton et al., 1996). For example, infrequent or light smokers (those who smoke less than one cigarette a week) may believe themselves to be non-smokers and in effect, unintentionally underestimate their smoking (Patrick et al., 1994). Alternatively, non-smokers who may have tried or experimented with smoking

just once but who have not since smoked a cigarette, may believe themselves to be ex-smokers and unintentionally overestimate their smoking (Stanton et al., 1996).

With respect to intentional response errors, smokers may intentionally deny smoking or may deliberately underestimate the amount smoked. This is likely where the social acceptability of smoking is perceived to be low and adolescent smokers may wish to conceal the true extent of their smoking activity to conform to the perceived social norm of 'not smoking' (Patrick et al., 1994). A further possibility is that a fear of parents or other adults in authority being given survey results may prevent adolescent smokers from being forthright about their involvement with cigarettes (Caraballo, Giovino, & Pechacek, 2004).

The promise of anonymity may mitigate the occurrence of such intentional response errors. However, anonymity itself potentially gives rise to the opposite problem where respondents exaggerate their use of cigarettes. For example, young people who approach smoking-related studies with a 'light-hearted' attitude or who wish to appear to conform to the perceived norms of smoking peers may deliberately overstate their smoking (Barnea, Rahav, & Teichman, 1987).

On balance however, studies that have examined the issue of reliability have found that self-reports are generally comparable to results obtained through biochemical measures (Bauman & Koch, 1983; Caraballo et al., 2004; Patrick et al., 1994; Stanton et al., 1996; Wills & Cleary, 1997). Provided care is taken in the construction of questionnaire items, assessing young people's smoking status through self-reports generally produces reliable outcomes (Henriksen & Jackson, 1999).

As a precaution, deliberate steps were taken in the present study to increase the reliability of information collected. For instance, the field worker assured respondents at the start of data collection that all information gathered would be treated confidentially and that parents, principals, teachers and other adults in authority would not be granted access to the data. To minimise the possibility of

non- or under- reporting by smokers, anonymity was guaranteed by not requiring any form of identification whatsoever to be recorded on the questionnaire and by providing identical self-sealing envelopes to all participants in which to return completed questionnaires immediately and directly to the field worker. The importance of the research, its voluntary nature and the significance of respondents' input were also emphasised to encourage a serious and honest approach to the provision of information.

### **4.6.3 Data analysis**

The use of chi-square as a primary test – necessitated by the predominantly nominal level measurement of data in the present study – has an inherent limitation that is associated with sample size. Principally, problems of interpreting chi-square statistics arise when the expected frequency of cases in any cell in a cross-tabulation is equal to five or less (Argyrous, 2002). This generally occurs where the sample size of groups being investigated is small. Although some authors suggest that having 20 percent (Field, 2003) or even 25 percent (George & Mallery, 2003) of cells with expected values of five or less is acceptable, the occurrence of any cell generally makes the statistic unreliable and most authors recommend rejecting the results (see for example: (Argyrous, 2002; Brace, Kemp, & Snelgar, 2000; Statsoft, 2004).

A reverse problem occurs where sample sizes are large. When using chi-square as a test of independence, the probability of finding significant associations where none exists generally increases as sample numbers increase. This creates a situation where the importance of a particular finding may be overstated – i.e. a Type II error is committed (Argyrous, 2002). However, this is the same regardless of the type of statistical test employed and should not invalidate the results of the study (Argyrous, 2002). Nevertheless, this potential should be recognised.



## **4.7 Summary**

This chapter described the methodology relating to the quantitative exploration of young people's conceptualisation of smoking addiction. It presented hypotheses to be tested and the theoretical framework on which they were developed. The chapter also described issues relating to the collection of data and limitations of the proposed research. Results and analyses of data are presented in the following two chapters.

## **Chapter FIVE: RESULTS OF MAIN STUDY – PRIMARY SCHOOL STUDENTS**

---

### **5.1 Introduction**

This chapter presents results of the main study for respondents from primary school. First, sample characteristics are described; next, statistical techniques used in analysing the data are outlined and then analyses of the data, hypotheses testing and significant findings are reported.

Chapter four described how respondents were selected and recruited for the main study. Briefly, government and non-government primary and secondary schools were randomly chosen from the local White Pages telephone directory and asked to participate in the study. Students in Years Four to Ten from schools who agreed to take part were then surveyed. In total, 875 students were surveyed from six schools located within a 20-kilometre radius of the city centre in metropolitan Perth, Western Australia. The schools included two government and four non-government institutions. Four schools were co-ed or mixed sex schools and two were all-girl institutions.

This chapter presents analyses and results of respondents from primary schools only – i.e., those in Years Four, Five, Six and Seven. Results for secondary school students (those in Years Eight through Ten) are reported in Chapter Six.

## 5.2 Primary school data

### 5.2.1 Sample overview

In total, 302 young people from primary schools in Years Four to Seven inclusive were surveyed. Key characteristics of these respondents are presented in Table 5.1.

*Table 5.1  
Overview of Primary School Respondents*

Description		n	%
Sex	Boy	129	43
	Girl	170	56
	Missing	3	1
	<b>Total</b>	<b>302</b>	<b>100</b>
School Year	Year 4	71	23
	Year 5	79	26
	Year 6	88	29
	Year 7	59	20
	Missing	5	2
	<b>Total</b>	<b>302</b>	<b>100</b>
Age (years)	10	53	18
	11	80	27
	12	93	30
	13	58	19
	14	6	2
	Missing	12	4
	<b>Total</b>	<b>302</b>	<b>100</b>

The total sample included 71 (23%) students from Year Four; 79 (26%) from Year Five; 88 (29%) from Year Six; and 59 (20%) from Year Seven. Five students (2%) did not provide information on school year. With respect to gender, 129 were boys (43%) and 170 were girls (56%). Three students (1%) did not provide gender information.

Respondents were aged between 10 and 14 years: 53 (18%) were 10 years old; 80 (27%) were 11 years old; 93 (30%) were aged 12 years; 58 (19%) were aged 13 years; and 6 (2%) were 14 years old. Twelve students (4%) did not provide this information.

For purposes of data collection and data analysis, school year rather than age was used in the present study. Although age is generally related to school year, this relationship is only an approximate one. In relation to the current sample, there was a difference in students' ages of between one to three years at each level. This was possible for two reasons. First, although schooling is compulsory in Western Australia for children from seven years of age, some young people begin Year One at age five or six. Second, students can be held back one or more years as a result of poor academic performance whilst their peers progress through successive school levels. Both situations can distort the association between age and school year. In this study, a consistent focus on school level was taken in relation to data collection and data analysis primarily because students are assumed to be more developmentally similar in the same school year than at the same age but in different years.

Although primary school students from government and non-government institutions were surveyed, the final sample consisted mainly of students from the latter schools. This resulted from an inability to complete the survey for all participating government schools within the data collection period.

### **5.2.2 Weighting**

To adjust and control for the possible effects of under- or over- sampling with respect to gender and school year, a weighting was applied to these variables. The effect of the weighting was to artificially raise or reduce the number of cases within particular categories. This was achieved by applying a statistical factor and adjusting the relative proportion of cases between categories (de Vaus, 2002). In the present study, the weightings applied in all analyses of the data are reported in

Table 5.2. The weighted analyses therefore do not include the results for whom school year or gender were missing (n = 7).

*Table 5.2  
Weighting Table*

Sex	School Year	Number of Cases (Actual)	Percent of Total (Actual)	Weighting Proportion	Weighting Applied	Number of Cases (Weighted)
Boy	Year 4	36	12.2	12.5	1.02	37
	Year 5	41	13.9	12.5	0.90	37
	Year 6	24	8.14	12.5	1.54	37
	Year 7	26	8.81	12.5	1.42	37
	Total	127	43.05	50	-	148
Girl	Year 4	35	11.86	12.5	1.05	37
	Year 5	38	12.88	12.5	0.97	37
	Year 6	63	21.36	12.5	0.59	37
	Year 7	32	10.85	12.5	1.15	37
	Total	168	56.95	50	-	148

### 5.2.3 Smoking status

Student smoking status was obtained from self-reports in the survey instrument. Two questions based on the standard classification system used by the Office of Population Census and Survey (OPCS) in the UK were used to determine whether students were non-smokers, triers or current smokers.

All students were presented with a number of smoking descriptors and asked to select the one that best described themselves. The descriptors were:

1. I have never smoked
2. I have only ever tried smoking once
3. I used to smoke sometimes but I never smoke a cigarette now
4. I sometimes smoke cigarettes now but I smoke less than 1 a week
5. I usually smoke between 1 and 6 cigarettes a week
6. I usually smoke more than 6 cigarettes a week but less than 20
7. I usually smoke 20 to 40 cigarettes a week
8. I usually smoke more than 40 cigarettes a week

Respondents who selected items 4 to 8 were classified as current smokers. Those who selected items 1 to 3 were asked to attempt a second question and select again from the following:

1. I have never tried smoking a cigarette, not even a puff or two
2. I did once have a puff or two of a cigarette but I never smoke now
3. I do sometimes smoke cigarettes

Based on this second response, students selecting item 1 were classified as ‘never smokers’ (i.e., non-smokers); those selecting item 2 were classified as ‘triers’; and, those selecting item 3 were classified as ‘current smokers’. These classifications are used throughout chapters five and six for the reporting of analyses and results.

Prevalence studies on young people’s tobacco use in Western Australia, and more broadly in Australia, usually include only usage rates of those aged 12 years (or Year Seven) and over. At age 12, less than 4% of young people are known to be current smokers (i.e., defined as students who smoked in the last week). This rises to 6% for those aged 13 and 11% for those aged 14 years (Quit WA & Population Health Division Department of Health WA, 2004).

*Table 5.3  
Smoking Status of Primary School Respondents*

Description		n	%
Smoking status (Unweighted)	Never smoker	273	91
	Trier	22	7
	Current smoker	7	2
	Total	302	100
Smoking status (Weighted)	Never smoker	267	90
	Trier	22	8
	Current smoker	5	2
	Total	295	100

Given this general level of smoking incidence, it was expected that most of the primary school students surveyed (aged 10 to 14 years inclusive) would be never smokers. Table 5.3 presents information relating to the smoking status of

respondents. Unweighted totals were: 273 (91%) never smokers, 22 (7%) triers and 7 (2%) current smokers. With weightings applied, comparative totals were: 267 (90%) never smokers, 22 (8%) triers and 5 (2%) current smokers.

## **5.3 Addiction analyses**

The following sections present an exploration of primary school students' conceptualisation of addiction. The sections include a broad analysis of young people's concepts of addiction generally, as well as more specific examinations of smoking addiction. Overall, results are presented in three sections:

- the first section reports results pertaining to young people's conceptualisation of addiction in general;
- the second section reports results pertaining to young people's conceptualisation of smoking and addiction; and,
- the third section reports results pertaining to the relationship between specific beliefs about smoking addiction and young people's smoking intentions.

For ease of comparison, this format is also used in the presentation of results for secondary school data in the next chapter.

For primary analyses, the statistical technique used was chi-square tests. Essentially, the chi-square test is a probability test of whether variables are independent of each other (Foster, 2001). Where independence is not found, the test alternatively indicates that the variables presented in a cross-tabulation, for example, may be associated. Other statistical methods used were analysis of variance (ANOVA), multivariate analysis of variance (MANOVA), factor analysis and, for predicting intentions to smoke in the future, logistic regression.

All analyses were performed on weighted data. Percent figures throughout have been rounded to the nearest whole number. As part of the overall exploration of perceptions of addiction, comparisons by gender, school year and smoking status

were investigated. With respect to smoking status, responses for current smokers and triers were combined due to the small number of respondents in these groups. It can be noted that because triers and smokers represent 10% (i.e., less than 30 respondents) and never smokers represent 90% of the total sample, comparisons by smoking status are included as indications of possible, rather than robust, differences.

### **5.3.1 Conceptualisation of addiction in general**

This section presents the results for primary school students' perceptions of addiction in general. Conceptions of addiction were explored by asking respondents to compare the addictive qualities of the ten following substances, foods and activities:

#### Substances

1. Alcohol
2. Cigarettes
3. Drugs

#### Foods

4. Chocolates
5. Fast foods
6. Soft drinks

#### Activities

7. Gambling
8. Playing sports
9. Watching television
10. Playing video games



All respondents were asked to state whether each item was addictive (i.e., can you get addicted to...?) and where applicable, to rate the strength of that addiction (e.g., strong, weak, etc).

To further explore perceptions of general addiction, all respondents were then asked to select and rank the top three items in terms of:

- a) The relative difficulty of stopping or giving up a particular item when addicted;
- b) The relative ease of becoming addicted to a particular item; and,
- c) The relative danger of being addicted to a particular item.

### **5.3.1.1 Perceptions of general addictiveness**

Perceptions of general addictiveness were determined from answers to the question '*can you get addicted to...?*' for each of the above ten items. Respondents could answer 'yes', 'no' or 'don't know'. Figure 5.1 presents the results.

The majority of respondents generally perceived each of the items as possibly addictive except for soft drinks (47%) and playing sports (39%). Cigarettes, drugs, alcohol and gambling were each perceived to be addictive by more than 80% of respondents. Watching television, playing video games and consuming chocolates were perceived to be addictive by 67% to 75% of respondents. Fast foods were thought to be addictive by 51% of respondents. Playing sports was the only item for which more respondents believed it was not addictive than addictive (48% vs. 39% respectively).

The results suggested that there was little uncertainty regarding the addictive nature of the items assessed. The low percentage of 'don't know' responses indicated that most respondents generally had clear ideas about whether or not the given items could be addictive. This applied particularly to the items generally considered addictive by the vast majority. For example, only 1% of respondents

answered 'don't know' for cigarettes, 4% for drugs, 5% for alcohol and 6% for gambling. Of the ten items, respondents had the greatest uncertainty regarding whether fast foods (17% 'don't know') and soft drinks (16% 'don't know') could be addictive.

### *Factor Analysis*

Data reduction via principal component analysis was performed to explore whether the above results reflected an underlying pattern in respondents' perceptions of addiction forming substances and behaviours. Preliminary data screening analyses of the ten items produced an overall KMO statistic of 0.792 (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) and a Bartlett's test significance of  $p < .001$  (Bartlett's Test of Sphericity). Both statistics indicated an underlying relationship between the items (where  $KMO > .5$  and Bartlett  $p < .05$ ) and that factor analysis was an appropriate and reliable procedure to use to explore distinct relationships inherent in the data (Field, 2003). Data screening also produced a determinant correlation matrix of 0.031 (necessary value  $> 1.0E-05$  or .00001) suggesting that the items correlated fairly well and that extreme singularity and multi-collinearity were not problems in the data (i.e., there was no need to remove any of the items due respectively to perfect or overly high correlations) (Field, 2003).

In factor or component analysis, a number of criteria can be applied to determine the number of factors to extract. For example, factors with Eigenvalues (i.e., latent roots) greater than one are typically considered significant while those less than one are generally considered insignificant and hence, discarded (Hair, Anderson, & Tatham, 1987). The number of factors to extract can also be determined by plotting Eigenvalues in order of extraction against number of factors to produce a scree plot. This scree test criterion judges the number of reasonable factors that can be extracted to be the point of inflexion in the curve (Field, 2003).

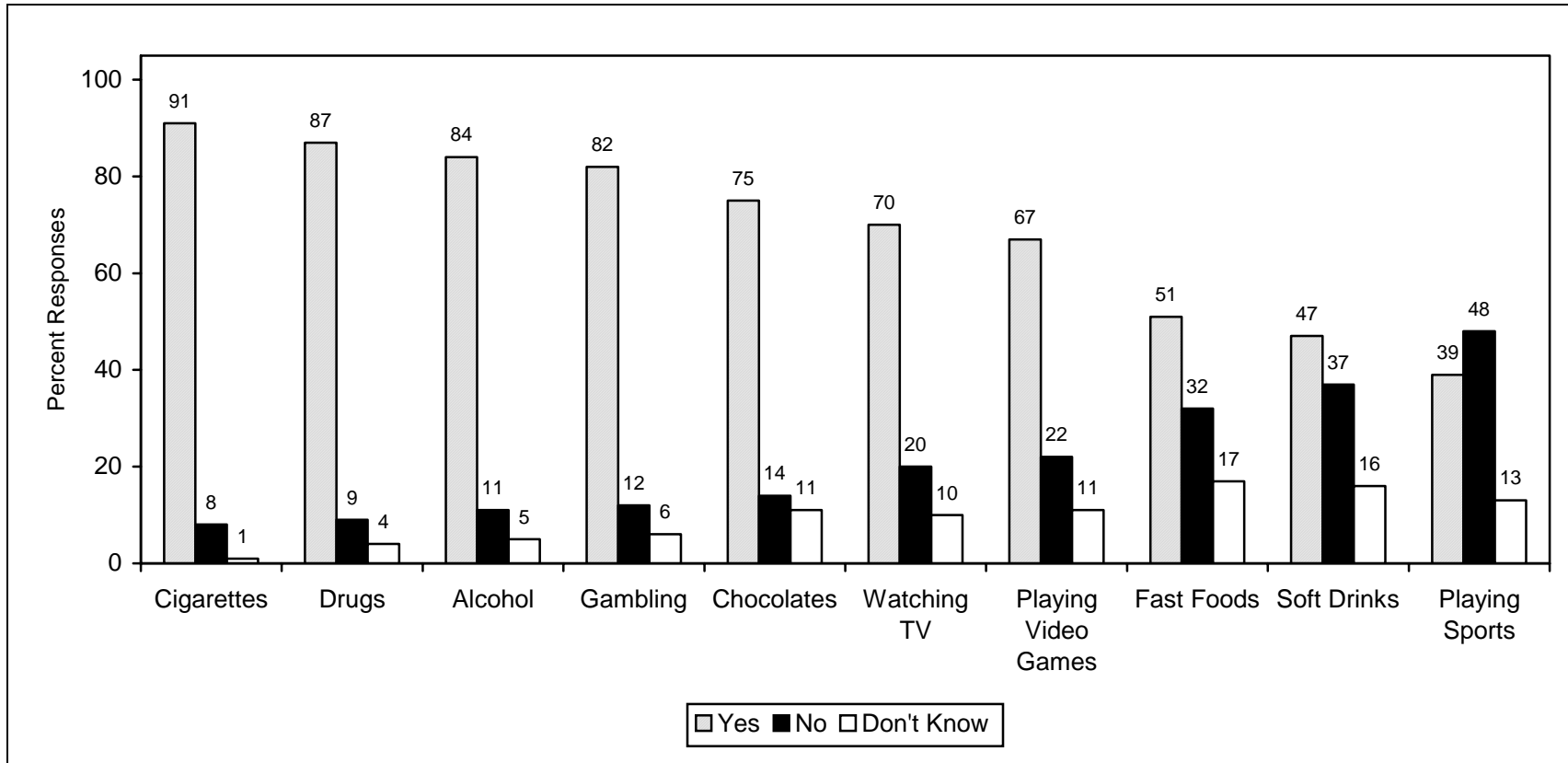


Figure 5.1 – Primary School Students’ Perceptions of General Addictiveness: ‘Can You Get Addicted to... ?’

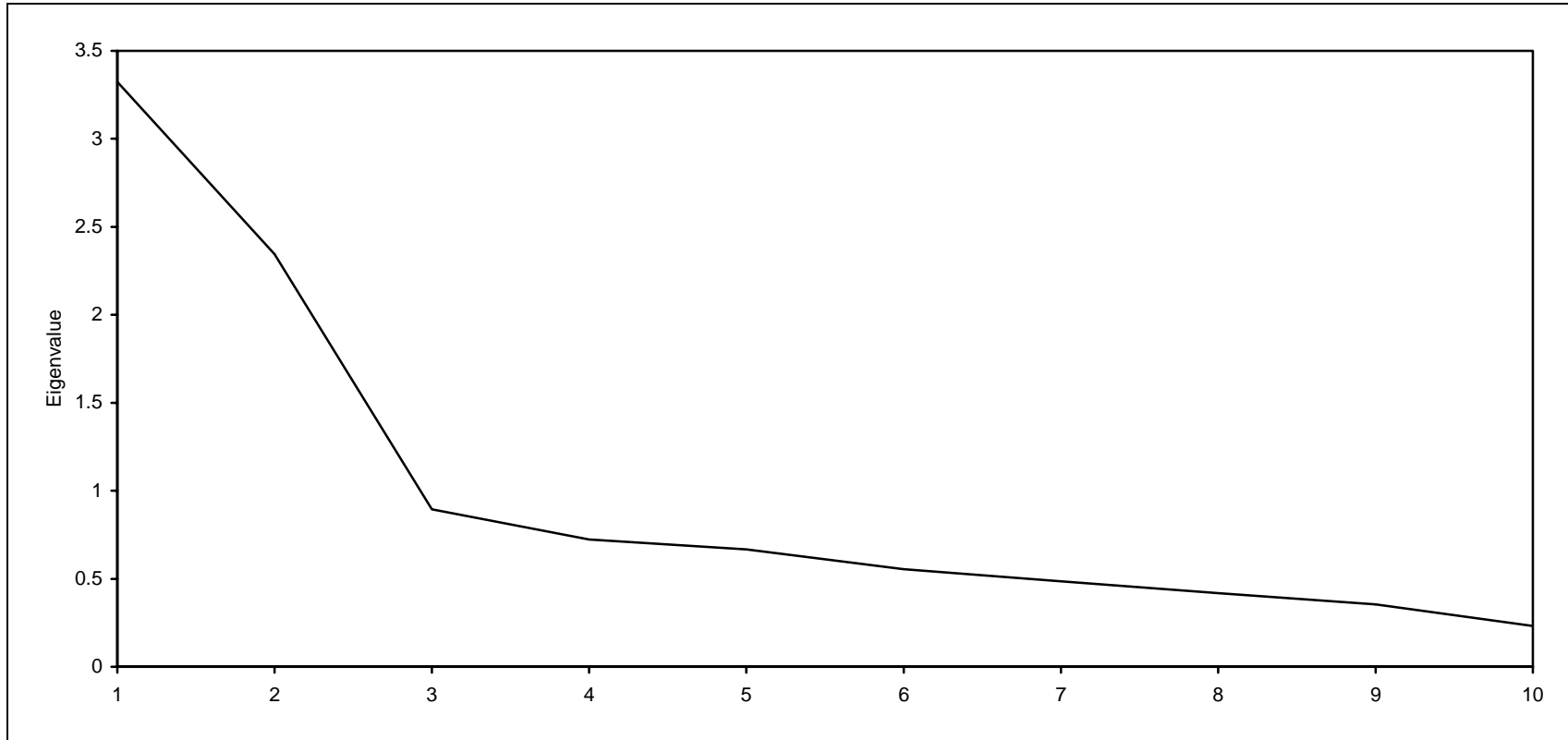


Figure 5.2 – Factor Scree Plot (10 Items)

Applying the scree test, Figure 5.2 shows that three factors could reasonably be extracted. Factor analysis results are presented in Table 5.4. Generally, loadings > 0.5 are considered practically significant (Hair, Anderson, Tatham, & Black, 1998). Hence, only loadings greater than 0.5 are shown in the table.

From Table 5.4, factors F1, F2 and F3 represent underlying groupings of the addictiveness of the ten items compared. As perceived by respondents, cigarettes, drugs, alcohol and gambling loaded onto factor F1; fast foods, chocolates and soft drinks loaded onto factor F2; and, playing video games and watching television loaded onto factor F3. The item ‘playing sports’ did not load significantly onto any factor.

*Table 5.4*  
*Principal Component Analysis of Items with Varimax Rotation of 3 Extracted Factors*

Items	Factors/Groupings			Communalities
	F1	F2	F3	
<u>Cigarettes</u>	.871			.783
Drugs	.840			.745
Alcohol	.829			.696
Gambling	.736			.554
Fast Foods		.758		.611
Chocolates		.742		.554
Soft Drinks		.726		.594
Playing Sports				-
Video Games			.867	.786
Watching TV			.810	.786
Eigenvalues	3.324	2.345	0.894	6.593
% Variance Explained	33.243	23.447	8.941	65.93

Factor loadings provide a gauge of the importance of an item within a given factor – greater loadings provide a more reliable measure of the factor (Tabachnick & Fidell, 1996). Communality is the proportion of shared variance within an item and indicates the proportion of variance explained by the extracted factors (Field, 2003). As for factor loadings, greater communality values provide a greater explanation. Based on both these measures (i.e., factor loadings and communalities), the overall results were both substantive and reliable.

The three factors may be interpreted as groupings of items along the following unifying dimensions:

- Factor F1: ‘Sin’ items
- Factor F2: ‘Food and drink’ items
- Factor F3: ‘Entertainment’ items

In the above table, the very high loadings of cigarettes, alcohol, drugs and gambling on factor F1 indicated that respondents perceived the general addictiveness of these items as highly correlated with one another and significantly distinct from that of other factors and the items within them (Kachigan, 1986). Notwithstanding this result, gambling appeared not to correlate as strongly with the three other items in its group – cigarettes, alcohol and drugs.

Factor F2 included all three food and drink items (fast foods, chocolates and soft drinks). Again, high factor loadings of the items showed that the items were highly correlated with one another and formed a distinct factor grouping.

Finally, factor F3 incorporated electronic entertainment items – namely, watching television and playing video games. Both items loaded very strongly onto the factor.

#### *Differences in Perceptions by Gender and School Year*

Gender and school year differences relating to perceptions of addictiveness were explored using multivariate analysis of variance (MANOVA).

Although separately exploring each of the ten items individually (for differences by gender and school year) is not uncommon, running multiple individual ANOVAs for the ten items against gender and school year inflates the overall risk of finding significant results where none may exist (Type I error) (Field, 2003). In addition, to determine whether gender and school year was associated with any overarching effect on perceptions of addictiveness in general, all ten items needed

to be examined simultaneously rather than separately via numerous ANOVAs (Field, 2003). For these reasons, MANOVA was used in the current analysis.

Table 5.5 presents MANOVA test statistics for differences in perceptions of general addictiveness (DV – dependent variable) and respondents' gender and school year (IV – independent variable). SPSS provides Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root tests as standard multivariate tests. Of the four tests, Roy's Largest Root is generally the most powerful and robust for assessing statistical significance (Field, 2003).

With respect to perceptions of addictiveness, test statistics showed that there were no significant differences for gender overall – i.e., perceptions of the addictiveness of items were not related to respondent's gender. However, school year and the interaction of gender with school year produced statistically significant results. Separate ANOVAs were therefore performed on each addiction item as follow-up analyses (Field, 2003).

Differences in perceptions between respondents from Years Four to Seven are presented in Table 5.6. Overall, two of the ten items – alcohol and gambling – produced statistically significant results ( $p < .05$ ) and two – watching TV and playing sports – approached significance ( $p < .06$ ), indicating that these items were perceived differently by students in different school years. The differences for alcohol and gambling are shown in Figures 5.3 and 5.4.

*Table 5.5*  
*Multivariate Test Statistics of Differences in Perceptions of Addictiveness For Sex and School Year*

Effect	Test Statistic	Value	F	Hypothesis df	Error df	Significance
Intercept	Pillai's Trace	.735	77.141	10.000	278.000	.000
	Wilks' Lambda	.265	77.141	10.000	278.000	.000
	Hotelling's Trace	2.775	77.141	10.000	278.000	.000
	Roy's Largest Root	2.775	77.141	10.000	278.000	.000
Sex	Pillai's Trace	.025	.724	10.000	278.000	.702
	Wilks' Lambda	.975	.724	10.000	278.000	.702
	Hotelling's Trace	.026	.724	10.000	278.000	.702
	Roy's Largest Root	.026	.724	10.000	278.000	.702
School Year	Pillai's Trace	.207	2.072	30.000	840.000	.001*
	Wilks' Lambda	.800	2.155	30.000	816.661	.000*
	Hotelling's Trace	.243	2.238	30.000	830.000	.000*
	Roy's Largest Root	.206	5.760	10.000	280.000	.000*
Sex x School Year	Pillai's Trace	.157	1.544	30.000	840.000	.032*
	Wilks' Lambda	.849	1.563	30.000	816.661	.029*
	Hotelling's Trace	.171	1.581	30.000	830.000	.025*
	Roy's Largest Root	.121	3.389	10.000	280.000	.000*

Design: Intercept + Sex + School Year + (Sex\*School Year)

\*Significant at .05 level



Table 5.6  
ANOVA For Perceptions Of Addictiveness x School Year

Item	Sum of Squares	df	Mean Square	F	Sig.
<u>Cigarettes</u>	<u>.493</u>	<u>3</u>	<u>.164</u>	<u>.591</u>	<u>.621</u>
Drugs	1.370	3	.457	1.315	.270
Alcohol	4.108	3	1.369	3.286	.021*
Gambling	5.737	3	1.912	4.013	.008*
Chocolates	1.615	3	.538	1.038	.376
Fast Foods	5.038	3	1.679	2.194	.089
Soft Drinks	4.652	3	1.551	1.932	.124
Watching TV	4.969	3	1.656	2.545	.056
Video Games	1.433	3	.478	.690	.559
Playing Sports	6.366	3	2.122	2.577	.054

\* Significant at .05 level

In Figures 5.3 and 5.4, lower values on the y-axis approximate a ‘yes’ response (0 = item is addictive) while higher values approximate a ‘no’ (2 = item is not addictive). Tops and bottoms of the ‘I’ indicate the maximum and minimum range of responses respectively while the middle markings indicate the mean response.

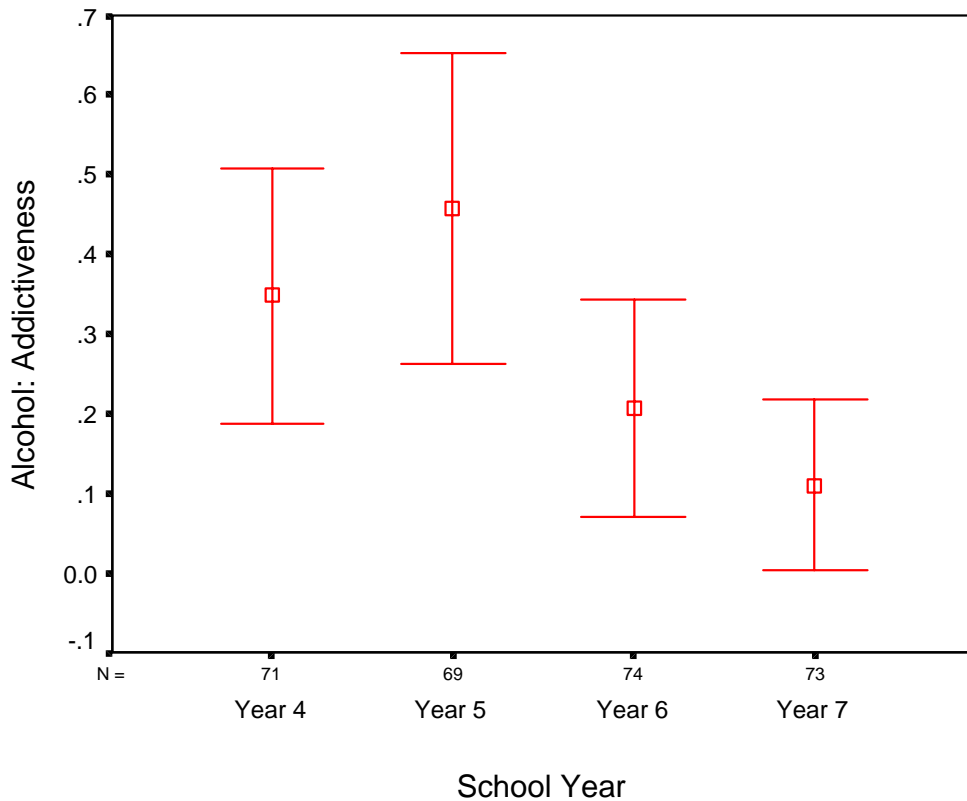


Figure 5.3 – Perceptions of Alcohol Addictiveness x School Year

For alcohol and gambling, the low scores (less than 0.7) in Figures 5.3 and 5.4 show that respondents across all school years generally perceived the items as addictive. However, older respondents (those in Years Six and Seven) had smaller response ranges and lower mean responses relative to respondents in Years Four and Five. Overall, these results indicate that older respondents were more likely than younger respondents to perceive that alcohol and gambling could be addictive.

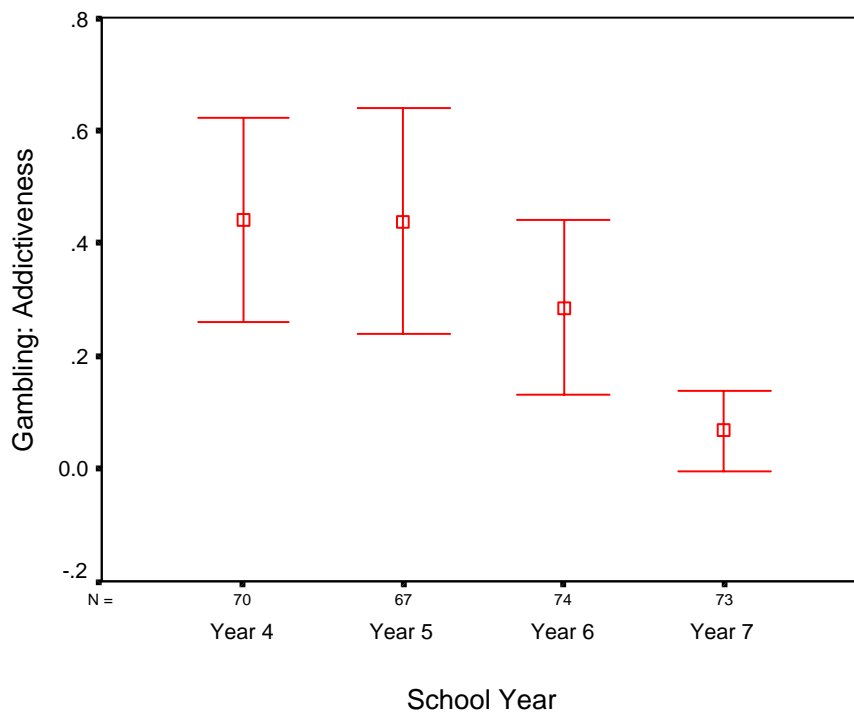


Figure 5.4 – Perceptions of Gambling Addictiveness x School Year

Table 5.7 presents ANOVA results of perceptions of addictiveness by gender and school year. This interaction of gender and school year on perceptions was shown to be statistically significant in the above MANOVA (Table 5.5).

Table 5.7 shows that only one of the ten items – drugs – produced a statistically significant result, indicating that this item was perceived differently by boys and girls in different school years. This interaction is shown in Figure 5.5.

Table 5.7  
ANOVA For Perceptions Of Addictiveness x Sex x School Year

Item	Sum of Squares	df	Mean Square	F	Sig.
Alcohol	.043	3	.0143	.034	.991
Drugs	3.260	3	1.087	3.128	.026*
Chocolates	1.852	3	.617	1.191	.313
<u>Cigarettes</u>	<u>.371</u>	<u>3</u>	<u>.124</u>	<u>.444</u>	<u>.722</u>
Fast Foods	2.108	3	.703	.918	.433
Gambling	1.048	3	.349	.733	.533
Playing Sports	4.987	3	1.662	2.019	.111
Soft Drinks	3.901	3	1.300	1.621	.185
Watching TV	1.675	3	.558	.858	.463
Video Games	.214	3	.072	.103	.958

\* Significant at .05 level

Similar to the figures above, lower values on the y-axis in the current figure approximate a 'yes' response (0 = item is addictive) while higher values approximate a 'no' (2 = item is not addictive). Tops and bottoms of the 'I' indicate the maximum and minimum range of responses respectively while the middle markings indicate the mean response.

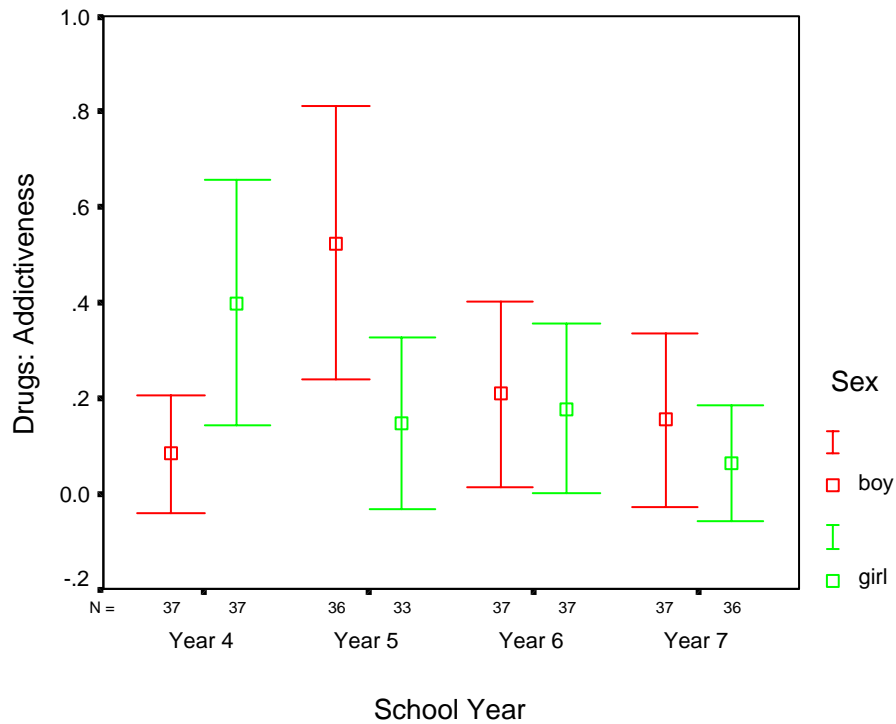


Figure 5.5 – Perceptions of Drugs Addictiveness x Sex x School Year

Figure 5.5 shows that boys and girls in Years Four and Five perceived the addictiveness of drugs differently. The response range and mean for boys in Year Four were considerably lower than that for girls in the same school year, suggesting that boys were more likely than girls to state that drugs were addictive. The reverse occurs in Year Five where response range and mean for boys were considerably higher than that for girls. There appears to be no reason for this and may simply be a 'statistical aberration'.

Overall, the results for this section suggest that although some statistically significant findings were produced in relation to differences by gender and school year, the outcomes indicate no overarching gender but perhaps a developmental effect on how respondents perceived the addictiveness of the items assessed.

With respect to cigarettes, perceptions of the addictiveness of cigarettes did not differ significantly by gender or school year although slightly more higher than lower school year respondents thought that cigarettes were addictive (95% Year Seven vs. 87% Year Five) (Appendix Table 5.2). Uncertainty regarding the addictiveness of cigarettes (i.e., 'don't know' responses) was extremely low regardless of gender (average 1%) (Appendix Table 5.1) or school year (average 2%) (Appendix Table 5.2).

### **5.3.1.2 Perceptions of addiction strength**

Figure 5.6 shows the perceived addictive strength of the items for respondents who believed the items could be addictive. The items were rated on a four-point Likert scale that ranged from: '1: very weak', '2: weak', '3: strong' to '4: very strong'. Table 5.8 presents means and standard deviations of responses.

The addictive strengths of cigarettes and drugs were rated strongest of all the items assessed – 77% and 74% respectively rated cigarettes and drugs as very strong (mean ratings: cigarettes = 3.72, drugs = 3.65). Only 3% and 4% of respondents respectively rated the addictive strength of cigarettes and drugs as weak and 1% and 2% rated these as very weak.

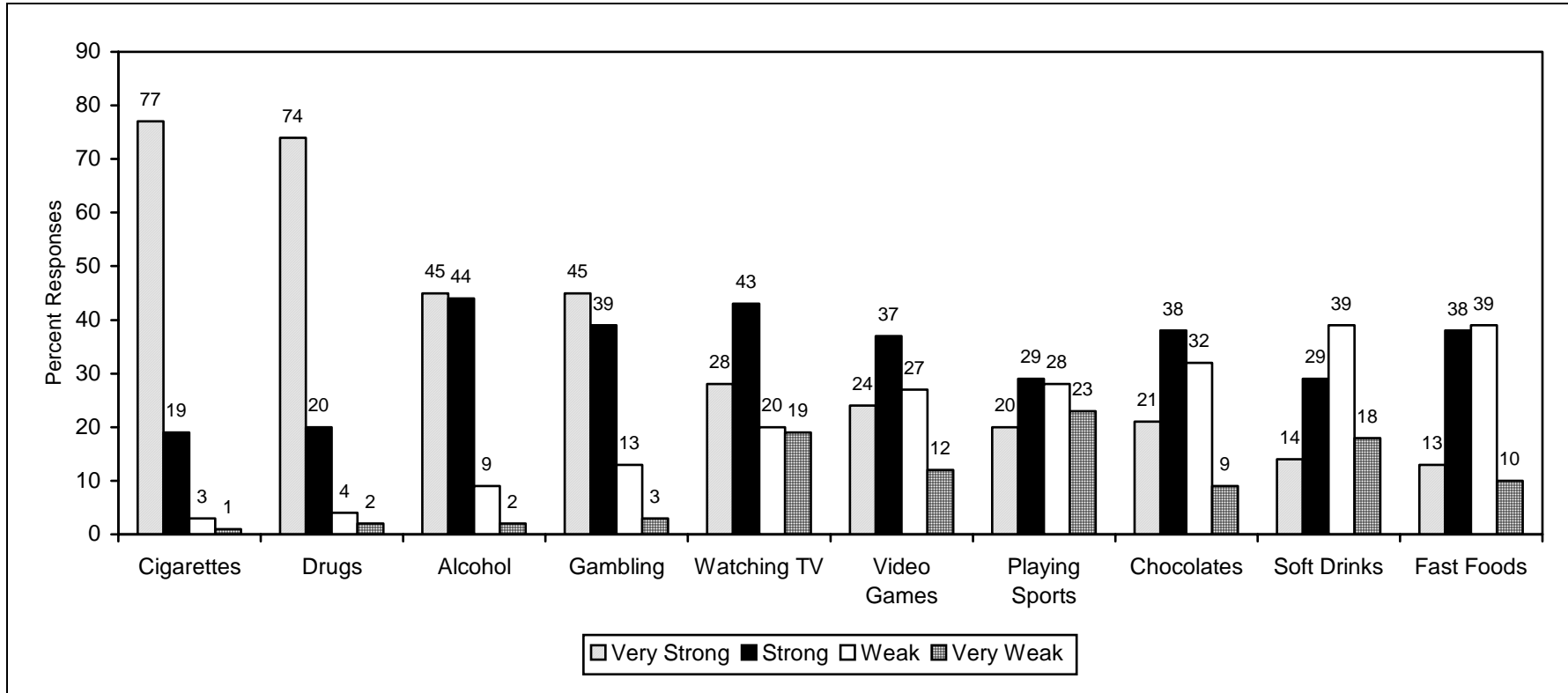


Figure 5.6 – Primary School Students’ Perceptions of Addictive Strength\*

\*(Only respondents who believed the items could be addictive)

Alcohol (mean = 3.31) and gambling (mean = 3.25) were each rated very strong by 45% of respondents and rated strong by 44% and 39% of respondents respectively. The percentage of respondents who rated these items as weak or very weak was comparatively low – about 10% and 15% respectively.

*Table 5.8  
Perceptions of Addictive Strength*

Item	Mean	Std. Deviation
<u>Cigarettes</u>	<u>3.72</u>	<u>.59</u>
Drugs	3.65	.67
Alcohol	3.31	.74
Gambling	3.25	.81
Watching TV	2.89	.92
Video Games	2.72	.96
Chocolates	2.69	.91
Fast Foods	2.52	.85
Playing Sports	2.48	1.06
Soft Drinks	2.38	.94

Ratings for addictive strength:  
1 = Very Weak, 2 = Weak, 3 = Strong, 4 = Very Strong

Clear majorities considered addiction to watching TV and playing video games as strong rather than weak (71% vs. 39%; 61% vs. 39% respectively) but means were relatively evenly divided for the remaining items.

#### *Differences in Perceptions by Gender and School Year*

Gender and school year differences relating to perceptions of addictive strength were explored using multivariate analysis of variance (MANOVA) (at  $p = .05$  level). As in the previous exploration of perceptions of general addictiveness, the running of multiple ANOVAs separately for the ten items against gender and school year in the current exploration can potentially inflate the overall risk of finding significant results where none may exist (i.e., Type I error) (Field, 2003). In addition, to determine whether gender and school year was associated with any overarching effect on perceptions of addictive strength in general, all ten items needed to be examined simultaneously.

Table 5.9

Multivariate Test Statistics of Differences in Perceptions of Addictive Strength For Sex and School Year

Effect	Test Statistic	Value	F	Hypothesis df	Error df	Significance
Intercept	Pillai's Trace	.989	795.650	10.000	88.000	.000
	Wilks' Lambda	.011	795.650	10.000	88.000	.000
	Hotelling's Trace	90.415	795.650	10.000	88.000	.000
	Roy's Largest Root	90.415	795.650	10.000	88.000	.000
Sex	Pillai's Trace	.133	1.349	10.000	88.000	.218
	Wilks' Lambda	.867	1.349	10.000	88.000	.218
	Hotelling's Trace	.153	1.349	10.000	88.000	.218
	Roy's Largest Root	.153	1.349	10.000	88.000	.218
School Year	Pillai's Trace	.335	1.131	30.000	270.000	.298
	Wilks' Lambda	.690	1.161	30.000	258.973	.265
	Hotelling's Trace	.412	1.190	30.000	260.000	.235
	Roy's Largest Root	.296	2.665	30.000	90.000	.007*
Sex x School Year	Pillai's Trace	.294	.979	30.000	270.000	.502
	Wilks' Lambda	.731	.971	30.000	258.973	.514
	Hotelling's Trace	.333	.962	30.000	260.000	.527
	Roy's Largest Root	.163	1.470	10.000	90.000	.164

Design: Intercept + Sex + School Year + (Sex\*School Year)

\*Significant at .05 level

Table 5.9 presents MANOVA test statistics for differences in perceptions of item addictive strength and respondents' gender and school year. With respect to perceptions of addictive strength, overall, the test statistics generally showed no significant differences for gender, school year or the interaction of gender and school year. However, Roy's Largest Root did produce a significant result ( $p < .007$ ) for school year. This finding was investigated by performing separate ANOVAs on each addiction item as a follow-up analysis. Table 5.10 provides the outcome of these ANOVAs.

From Table 5.10, only perceptions relating to the addictive strengths of alcohol and gambling were statistically significant by school year. These differences are shown in Figures 5.7 and 5.8.

*Table 5.10*

*ANOVA For Perceptions of Addictive Strength x School Year*

Item	Sum of Squares	df	Mean Square	F	Sig.
Cigarettes	.539	3	.180	.455	.714
Drugs	3.032	3	1.011	1.178	.168
Alcohol	8.604	3	2.868	5.070	.003*
Gambling	9.740	3	3.247	4.130	.008*
Chocolates	.938	3	.313	.447	.720
Fast Foods	.760	3	.253	.363	.780
Soft Drinks	3.427	3	1.142	1.292	.282
Watching TV	1.618	3	.539	.712	.547
Video Games	1.404	3	.468	.572	.635
Playing Sports	1.662	3	.554	.488	.692

\* Significant at .05 level

In these figures, lower values on the y-axis reflect ratings of weaker addictive strength while higher values reflect ratings of stronger addictive strength. Tops and bottoms of the 'I' indicate the maximum and minimum range of responses respectively while the middle markings indicate the mean response.

For alcohol and gambling, Figures 5.7 and 5.8 show that respondents in Years Six and Seven had smaller response ranges and higher mean responses relative to respondents in Years Four and Five. Broadly, the figures indicate that older



respondents generally rated the addictive strength of alcohol and gambling more strongly than did younger respondents.

Overall, the results for the section suggest that although some statistically significant findings were produced in relation to differences by school year, none of the outcomes indicates an overarching gender or developmental effect on how respondents perceived the addictive strength of the items assessed.

Perceptions of the addictive strength of cigarettes did not differ significantly in relation to respondent's gender – 98% of girls in the current study rated the addictive strength of cigarettes as strong and very strong while 2% rated cigarettes as weak and very weak (Appendix Table 5.3); and, 95% of boys rated cigarettes as strong and very strong while 5% rated it as weak and very weak. For school year (Appendix Table 5.4), generally more older respondents rated the addictive strength of cigarettes as very strong than did younger respondents, and less older than younger respondents rated cigarettes as weak and very weak. However, the differences were not significant.

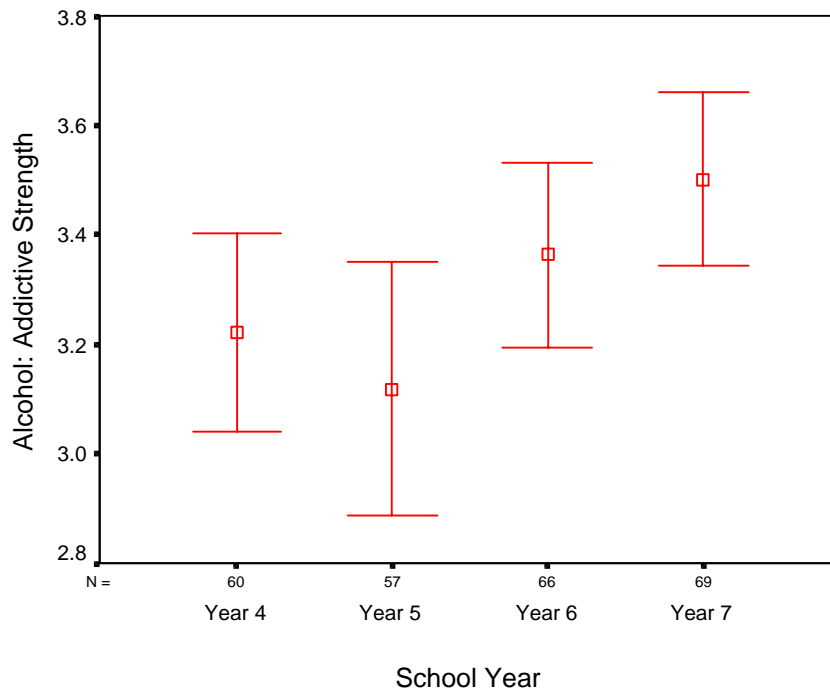


Figure 5.7 – Perceptions of Alcohol Addictive Strength x School Year

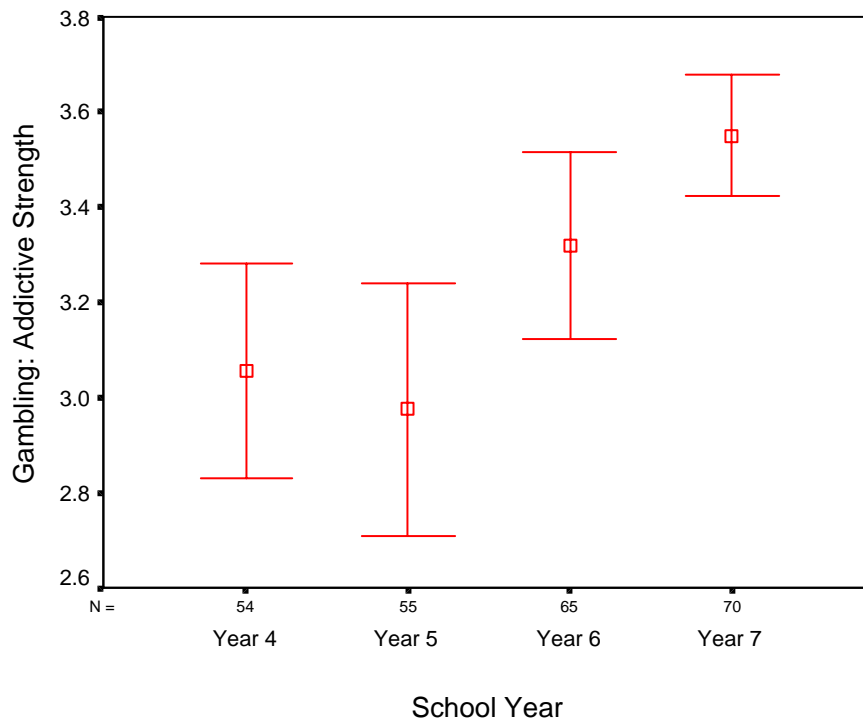


Figure 5.8 – Perceptions of Gambling Addictive Strength x School Year

### 5.3.1.3 Perceptions of difficulty in stopping an addiction

All respondents were asked how difficult it would be for someone to stop or give up each of the ten items when addicted. Respondents were required to select three items they thought were the most difficult to stop doing and then rank these by ‘very hardest’, ‘next hardest’ and ‘third hardest’ to stop. Table 5.11 presents the results of this ranking.

In general, the results reflect the perceptions of addictive strength in Figure 5.6, particularly in respect of cigarettes and drugs for which approximately 95% of all respondents rated the addictive strength as strong to very strong. Table 5.11 shows that the vast majority of respondents selected and ranked cigarettes or drugs as the hardest items to stop when addicted – 48% selected drugs as the item most difficult to stop and 40% selected cigarettes.

*Table 5.11  
Difficulty In Stopping – Items ranked ‘Very Hardest’, ‘Next Hardest’ & ‘Third Hardest’ to stop*

Item	Ranking			Total Top Three %
	Very Hardest (n = 294) %	Next Hardest (n = 294) %	Third Hardest (n = 294) %	
<u>Cigarettes</u>	<u>40</u>	<u>36</u>	<u>10</u>	<u>86</u>
Drugs	48	26	11	85
Alcohol	3	17	38	59
Gambling	2	11	26	38
Chocolates	4	4	5	12
Watching TV	2	2	4	8
Video Games	1	1	2	4
Fast Foods	-	1	1	3
Soft Drinks	-	2	1	3
Playing Sports	-	-	2	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>300</b>

By comparison, only a very small percentage of respondents ranked chocolates (4%), alcohol (3%), gambling (2%), watching TV (2%) or playing video games (1%) as their first choice for items hardest to stop.

Overall, 86% of all respondents selected cigarettes and 85% selected drugs as one of their three top-ranked items. Alcohol was selected and ranked by 59% of all respondents as one of the top three most difficult to stop, gambling by 38%, chocolates by 12% and watching TV by 8% of respondents. Less than 5% of respondents selected and ranked the remaining items (video games, fast foods, soft drinks and playing sports) as one of the top three. Relative to all other items, playing sports was selected by the least number of respondents (2%).

It can be noted that because all respondents ranked these items regardless of whether they thought the items were addictive, the selection of top ranked items was influenced by the fact that these were also the most frequently nominated as addictive.

#### *Differences in Perceptions by Gender and School Year*

Table 5.12 shows rankings for the top three ranked items by gender. Column figures represent the percentage of respondents who:

- Selected and ranked the items as the ‘very hardest’ to stop (Top Ranked)
- Selected and ranked the items in the top two, i.e., ‘very hardest’ and ‘next hardest’ to stop (Ranked Top 2)
- Selected and ranked the items in the top three, i.e., ‘very hardest’, ‘next hardest’ and ‘third hardest’ to stop (Ranked Top 3).

Table 5.12 shows that 50% of boys selected drugs as the item most difficult to stop when addicted, 35% selected cigarettes and 3% selected alcohol. In comparison, 46% of girls selected drugs, 45% selected cigarettes and 3% selected alcohol.

Considering respondents’ top two rankings of items, more girls than boys selected cigarettes (80% vs. 73%) and alcohol (24% vs. 17%) as ‘very hardest’ and ‘next hardest’ to stop.

*Table 5.12  
Selected Item Rankings For Difficulty in Stopping x Sex*

Ranks	Item	Sex %		p-value
		Boy (n = 148)	Girl (n = 147)	
Top Ranked	Drugs	50	46	-
	<u>Cigarettes</u>	<u>35</u>	<u>45</u>	-
	Alcohol	3	3	-
Ranked Top 2	Drugs	73	74	-
	<u>Cigarettes</u>	<u>73</u>	<u>80</u>	-
	Alcohol	17	24	-
Ranked Top 3	Drugs	80	89	p < .05*
	<u>Cigarettes</u>	<u>83</u>	<u>89</u>	-
	Alcohol	56	61	-

\*Z-test for the significance of difference between proportions at .05 level.

Finally, considering respondents’ top three rankings of items, more girls than boys selected drugs (89% vs. 80%), cigarettes (89% vs. 83%) and alcohol (61% vs. 56%) as their top three choices of items that were hardest to stop.

Overall, z-tests for the significance of differences between proportions showed that there were no statistically significant gender differences in the ranking of top one and top two most difficult to stop items. However, in rankings of items in the top three, there was a statistically significant difference in the selection of drugs – more girls (89%) than boys (80%) ranked drugs in the top three. Overall however, both boys and girls were generally similar in their perceptions that cigarettes, drugs and alcohol were the top three items in terms of difficulty in stopping.

Table 5.13 shows drugs, cigarettes and alcohol rankings by school year. Approximately 45% of Years Four and Five students ranked cigarettes as the most difficult item to stop when addicted while about 40% selected and ranked drugs. By comparison, far more Years Six and Seven students selected drugs (51% and 62% respectively) than cigarettes (41% and 31% respectively) as the item hardest to stop.

*Table 5.13  
Selected Item Rankings For Difficulty in Stopping x School Year*

Ranks	Item	School Year				p-value
		%				
		Year 4 (n = 73)	Year 5 (n = 73)	Year 6 (n = 74)	Year 7 (n = 74)	
Top Ranked	Drugs	38	40	51	62	p < .05*
	<u>Cigarettes</u>	<u>45</u>	<u>44</u>	<u>41</u>	<u>31</u>	p < .05*
	Alcohol	1	3	7	-	-
Ranked Top 2	Drugs	65	67	81	82	p < .05*
	<u>Cigarettes</u>	<u>79</u>	<u>78</u>	<u>79</u>	<u>68</u>	p < .05*
	Alcohol	23	18	18	22	-
Ranked Top 3	Drugs	78	79	92	92	p < .05*
	<u>Cigarettes</u>	<u>83</u>	<u>84</u>	<u>89</u>	<u>88</u>	-
	Alcohol	44	62	61	67	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

In terms of the top two most difficult to stop items, about 80% of Years Six and Seven chose drugs and over 90% ranked drugs in the top three. For those in Years Four and Five, drugs were ranked in the top two by about two thirds of students and ranked in the top three by just over three quarters of students. Although alcohol was not generally perceived as the most difficult item to stop when

addicted (less than 10% of students in all school years selected this as their first choice), it was ranked by between 44% and 67% of all respondents in the top three of hard to stop items.

For school year, z-tests for the significance of differences between proportions showed that there were some statistically significant differences in how items were selected and ranked. For example, Table 5.13 shows that drugs increases significantly by year in terms of most difficulty in stopping (38% in Year Four to 62% in Year Seven) while cigarettes decreases from 45% to 31%. Also, drugs generally increases in top three rankings from Year Five to Year Six as does alcohol from Year Four to Year Five.

### 5.3.1.4 Perceptions of addiction ease

All respondents were asked how easy it would be for someone to become addicted to each of the ten items. Respondents were required to select three items they thought were the easiest to become addicted to and then rank these ‘very easiest’, ‘next easiest’ and ‘third easiest’. Table 5.14 presents the results of this ranking.

*Table 5.14  
Addiction Ease – Items ranked ‘Very Easiest’, ‘Next Easiest’ & ‘Third Easiest’ to be addicted to*

Item	Ranking			Total Top Three %
	Very Easiest (n = 295) %	Next Easiest (n = 295) %	Third Easiest (n = 295) %	
<u>Cigarettes</u>	31	27	10	68
Drugs	24	23	16	63
Alcohol	10	14	28	52
Gambling	7	9	13	29
TV	9	5	8	22
Chocolates	8	7	5	20
Soft Drinks	3	5	6	14
Fast Foods	3	3	7	13
Video Games	3	4	3	10
Playing Sports	2	3	4	9
Total	100	100	100	300

There was clearly less agreement on how easy items are to get addicted to (Table 5.14) than how difficult it is to stop once addicted (Table 5.11). From Table 5.14,

a slight majority of respondents ranked cigarettes or drugs as the very easiest item to become addicted to – 31% selected cigarettes and 24% selected drugs for their first choice. The remaining items were selected by 10% or less of respondents as ‘very easiest’ – alcohol (10%), gambling (7%), watching TV (9%), chocolates (8%), soft drinks, fast foods and playing video games (each 3%) and playing sports (2%).

Overall, 68% of all respondents selected cigarettes and 63% selected drugs as one of their three top-ranked items. One other item – alcohol – was selected and ranked in the top three by more than 50% of respondents. The remaining items were selected by considerably fewer respondents – for example, gambling by 29%; chocolates and watching TV by about 20%; soft drinks, fast foods and playing video games by less than 15%; and playing sports by less than 10%.

#### *Differences in Perceptions by Gender and School Year*

Gender and school year differences are shown in Table 5.15 and 5.16 respectively for drugs, cigarettes and alcohol. As in the previous section, column figures represent the percentage of respondents who:

- Selected and ranked the items as the ‘very easiest’ to be addicted to (Top Ranked)
- Selected and ranked the items in the top two, i.e., ‘very easiest’ and ‘next easiest’ to be addicted to (Ranked Top 2)
- Selected and ranked the items in the top three, i.e., ‘very easiest’, ‘next easiest’ and ‘third easiest’ to be addicted to (Ranked Top 3).

Table 5.15 shows that more girls than boys ranked cigarettes in the top one (37% vs. 25%), top two (61% vs. 55%) and top three (71% vs. 65%) items easiest to become addicted to. More girls than boys also ranked drugs in their top two (50% girls vs. 45% boys) and top three (69% girls vs. 58% boys), while slightly more boys than girls ranked alcohol in their top two (26% vs. 23%) and top three (55% vs. 49%).

Table 5.15  
Selected Item Rankings For Ease of Addiction x Sex

Ranks	Item	Sex %		p-value
		Boy (n = 147)	Girl (n = 147)	
Top Ranked	Drugs	25	23	-
	<u>Cigarettes</u>	<u>25</u>	<u>37</u>	p < .05*
	Alcohol	11	10	-
Ranked Top 2	Drugs	45	50	-
	<u>Cigarettes</u>	<u>55</u>	<u>61</u>	-
	Alcohol	26	23	-
Ranked Top 3	Drugs	58	69	p < .05*
	<u>Cigarettes</u>	<u>65</u>	<u>71</u>	-
	Alcohol	55	49	-

\*Z-test for the significance of difference between proportions at .05 level.

Z-tests for the significance of differences between proportions showed that except for cigarettes as their first choice (which more girls than boys selected) and drugs in their top three choice (which more girls than boys selected), differences in the majority of item rankings were not statistically significant.

Table 5.16  
Selected Item Rankings For Ease of Addiction x School Year

Ranks	Item	School Year %				p-value
		Year 4 (n = 73)	Year 5 (n = 74)	Year 6 (n = 74)	Year 7 (n = 74)	
Top Ranked	Drugs	30	18	32	18	p < .05*
	<u>Cigarettes</u>	<u>12</u>	<u>45</u>	<u>34</u>	<u>35</u>	p < .05*
	Alcohol	7	8	15	11	-
Ranked Top 2	Drugs	45	42	58	44	p < .05*
	<u>Cigarettes</u>	<u>35</u>	<u>66</u>	<u>68</u>	<u>63</u>	p < .05*
	Alcohol	20	24	24	30	-
Ranked Top 3	Drugs	56	62	74	61	p < .05*
	<u>Cigarettes</u>	<u>46</u>	<u>73</u>	<u>79</u>	<u>75</u>	p < .05*
	Alcohol	36	55	60	57	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

Table 5.16 shows rankings of the same items by school year. Z-tests for the significance of differences between proportions showed that the majority of differences in the ranking of items by school year were statistically significant.



However, much of these were accounted for by significant increases in the selection of cigarettes and alcohol after Year 4.

### 5.3.1.5 Perceptions of addiction danger

All respondents were required to select three items they thought were the most dangerous to become addicted to and then rank these by ‘most dangerous’, ‘next most dangerous’ and ‘third most dangerous’. Table 5.17 presents the results of this ranking.

*Table 5.17  
Addiction Danger – Items ranked ‘Most Dangerous’, ‘Next Most Dangerous’ & ‘Third Most Dangerous’ to be addicted to*

Item	Ranking			Total Top Three %
	Most Dangerous (n = 302) %	Next Most Dangerous (n = 301) %	Third Most Dangerous (n = 301) %	
Drugs	70	22	5	97
<u>Cigarettes</u>	<u>23</u>	<u>56</u>	<u>13</u>	<u>92</u>
Alcohol	6	19	59	84
Gambling	1	2	15	18
Fast Foods	-	1	4	5
Chocolates	-	-	2	2
Watching TV	-	-	2	2
Playing Sports	-	-	-	-
Soft Drinks	-	-	-	-
Video Games	-	-	-	-
Total	100	100	100	299

Table 5.17 shows that 70% of respondents ranked drugs as the most dangerous of these items to become addicted to. Overall, 97% of all respondents selected drugs as one of their three top-ranked items. Cigarettes was rated the second most dangerous and alcohol the third most dangerous. In total, 92% and 84% respectively of respondents ranked these as one of the top three most dangerous items to be addicted to.

Of the remaining items, gambling was ranked in the top three by 18% of respondents, fast foods by 5%, and chocolates and watching television by 2% of

those surveyed. Playing sports, soft drinks and video games were not selected by any of the respondents.

*Differences in Perceptions by Gender and School Year*

Table 5.18 shows that except for cigarettes in the top three of most dangerous items (which more girls selected than boys), z-tests for the significance of differences between proportions showed that the rankings of items by gender were not statistically significant.

*Table 5.18  
Selected Item Rankings For Addiction Danger x Sex*

Ranks	Item	Sex %		p-value
		Boy (n = 148)	Girl (n = 148)	
Top Ranked	Drugs	69	70	-
	<u>Cigarettes</u>	<u>21</u>	<u>25</u>	-
	Alcohol	8	3	-
Ranked Top 2	Drugs	91	93	-
	<u>Cigarettes</u>	<u>76</u>	<u>80</u>	-
	Alcohol	25	23	-
Ranked Top 3	Drugs	96	98	-
	<u>Cigarettes</u>	<u>88</u>	<u>95</u>	p < .05*
	Alcohol	81	84	-

\*Z-test for the significance of difference between proportions at .05 level.

Table 5.19 shows rankings by school year. Drugs as the most dangerous showed a significantly increasing trend by school year: 51% in Year Four; 64% in Year Five; 70% in Year Six; and 93% in Year Seven. Conversely, cigarettes showed a downward trend in the most dangerous by school year.

Table 5.19

Selected Item Rankings For Addiction Danger x School Year

Ranks	Item	School Year				p-value
		%				
		Year Four (n = 73)	Year Five (n = 75)	Year Six (n = 74)	Year Seven (n = 74)	
Top Ranked	Drugs	51	64	70	93	p < .05*
	<u>Cigarettes</u>	<u>37</u>	<u>29</u>	<u>19</u>	<u>7</u>	p < .05*
	Alcohol	10	3	10	-	p < .05*
Ranked Top 2	Drugs	86	91	92	98	p < .05*
	<u>Cigarettes</u>	<u>76</u>	<u>81</u>	<u>76</u>	<u>79</u>	-
	Alcohol	31	19	26	21	-
Ranked Top 3	Drugs	92	99	98	98	-
	<u>Cigarettes</u>	<u>89</u>	<u>93</u>	<u>89</u>	<u>95</u>	-
	Alcohol	80	81	83	86	-

\*Z-test for the significance of difference between proportions at .05 level.

### 5.3.1.6 Summary

Table 5.20 presents a summary of the section's key results. With respect to the list of items tested (substances, foods and activities), the majority of respondents generally perceived each of the items (except for soft drinks and playing sports) as possibly addictive. For items such as drugs, alcohol and gambling, the percentage of respondents who believed that these were addictive was greater than 80% while for cigarettes, the figure was greater than 90%. Overall, the low percentage of 'don't know' responses indicated that there was generally little uncertainty about whether items were addictive, particularly in respect of cigarettes (less than 1%), drugs, alcohol and gambling (4% to 6%). Of the ten items, respondents were most uncertain about whether fast foods (17%) and soft drinks (16%) were addictive.

For strength of addiction, over 70% of respondents rated cigarettes and drugs, and over 40% rated alcohol and gambling as very strong. Significantly fewer respondents (less than 30%) rated food, drink and activity items as very strong addictions, and substantial proportions who believed that these items were addictive generally rated the addictive strength as weak or very weak (40% to 60%).

Cigarettes and drugs were perceived by the majority of respondents as being very easy to become addicted to (rated in the top three by over 60% of respondents), very difficult to stop when addicted (rated in the top three by over 85% of respondents), and very dangerous to be addicted to (rated in the top three by over 90% of respondents). Of the remaining items, only alcohol was rated in the top 3 in respect of these traits by more than 50% of respondents.

In general, although some statistically significant results were obtained in comparisons of perceptions of boys and girls (particularly in respect of perceptions relating to cigarettes: see below for discussion), differences by gender did not appear to be overarching.

However, several meaningful statistically significant differences by school year were found. A key finding was that older students were more likely than younger students to believe that alcohol and gambling were addictive. Older students were also more likely to rate the addictive strength of these two items stronger than did younger students. In relation to ratings of difficulty in stopping when addicted, ease of becoming addicted and danger of being addicted to the items, older students generally rated alcohol and gambling significantly higher on these measures than did younger students.

Of particular interest to the present thesis however, were differences in perceptions relating to cigarettes. Generally, significantly fewer of the youngest students (i.e., Year Fours) than others rated cigarettes in the top one, top two or top three of items easiest to become addicted to. For these students, drugs were perceived as substantially easier than cigarettes to become addicted to.

Significantly fewer of the oldest students (Year Sevens) than others rated cigarettes in the top one or top two of items hardest to stop when addicted. For these students, drugs were perceived as substantially harder than cigarettes to stop when addicted.

In respect of most dangerous items to be addicted to, cigarettes were rated most dangerous by more younger than older students. Generally as school year increased, the percentage of students selecting cigarettes as most dangerous decreased. For older students, drugs were seen as more dangerous than cigarettes. As school year increased, so too did the percentage of students who nominated drugs as most dangerous.

As mentioned above, differences by gender were not consistently found. In relation to cigarettes however, girls generally perceived cigarettes as more easily addicting and more dangerous when addicted than did boys. For ease of addiction, more girls than boys selected cigarettes as their first choice of items, and for danger of addiction, more girls than boys selected cigarettes in their top three items.

Table 5.21 presents a summary of perceptions of cigarette addictiveness by smoking status. Overall, never smokers were more likely than triers/current smokers to believe that cigarettes are addictive (92% vs. 85% respectively). There was no difference in the proportions of either group who rated the strength of smoking addiction as 'very strong', however, more triers/smokers than never smokers rated cigarettes as weak or very weakly addictive (15% vs. 3% respectively).

For perceptions relating to cigarettes as hardest to stop, easiest to become addicted to and most dangerous to be addicted to, Table 5.21 shows that substantially more never smokers than triers/smokers ranked cigarettes as top: 41% of never smokers vs. 29% ranked cigarettes top for hardest to stop; 33% vs. 18% respectively ranked cigarettes as top for ease of addiction; and 24% vs. 11% ranked cigarettes as top for danger. Overall, there was no difference between never smokers and triers/smokers in ranking cigarettes in the top three for being hard to stop (86% vs. 84%). However, there were considerable differences between the never smokers and triers/smokers in ranking cigarettes in the top

three for ease of addiction (70% vs. 57% respectively) and danger of addiction (93% vs. 76% respectively).

Table 5.20  
 Summary of Main Results – Primary School Students’ Perceptions of General Addiction

Items (Factor Groups)	Addictive %		Addictive Strength %		Hard To Stop %		Addictive Ease %		Addictive Danger %	
	Yes	Don't Know	Very Strong	Weak or Very Weak	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3
<u>Cigarettes</u>	<u>91</u>	<u>1</u>	<u>77</u>	<u>4</u>	<u>40</u>	<u>86</u>	<u>31</u>	<u>68</u>	<u>23</u>	<u>97</u>
Drugs	87	4	74	6	48	85	24	63	70	92
Alcohol	84	5	45	11	3	59	10	52	6	84
Gambling	82	6	45	16	2	38	7	29	1	18
Chocolates	75	11	21	41	4	12	8	12	-	2
Fast Food	51	17	13	49	-	3	3	3	-	5
Soft Drinks	47	16	14	57	-	3	3	3	-	-
Watching TV	70	10	28	39	2	8	9	22	-	2
Video Games	67	11	24	39	1	4	3	10	-	-
Playing Sports	39	13	20	51	-	2	2	9	-	-

Table 5.21

Summary of Main Results – Primary School Students’ Perceptions of Cigarette Addictiveness x Smoking Status

Smoking Status	Addictive %		Addictive Strength %		Hard To Stop %		Addictive Ease %		Addictive Danger %	
	Yes	Don't Know	Very Strong	Weak or Very Weak	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3
Never Smokers	92	1	77	3	41	86	33	70	24	93
Triers/Current Smokers	85	-	76	15	29	84	18	57	11	76



## **5.3.2 Conceptualisation of smoking and addiction**

This section presents the results for primary school students' conceptualisation of smoking and addiction. The perceived role of addiction in adult and youth smoking behaviour, what it means to be addicted to smoking, its perceived consequences, and beliefs about why and when smoking addiction happens were explored.

### **5.3.2.1 Perceptions of the role of addiction in adult and youth smoking**

In exploring perceptions of the role of addiction in smoking, two sets of questions explored whether primary school students thought adults and youths smoke for different reasons or motives.

For the first question, all respondents were asked:

- whether adult smokers who said they were addicted to cigarettes used this as an excuse for not quitting or were really addicted.
- whether youth smokers who said they were addicted to cigarettes used this as an excuse to feel grown up or were really addicted.

For the second question, all respondents were asked to select a single main reason why adults and young people smoke cigarettes. Four reasons were provided and these were that adults/young people smoke:

- mainly because their friends smoke
- mainly because they are stressed
- mainly because they want to look cool
- mainly because they are addicted

### Addiction as an ‘excuse’ for youth and adult smoking

Figure 5.9 shows that 82% of all respondents believed adults who claimed to be addicted really were addicted. In contrast, only 40% of respondents thought that youth smokers who claimed to be addicted were addicted. About 60% thought that youth smokers claiming to be addicted were using addiction as an excuse to appear ‘grown up’. This suggests that even though the broad perception is that young people smoke for reasons relating to image and friends, a substantial number of respondents nevertheless believe that young people can or do become addicted to smoking.

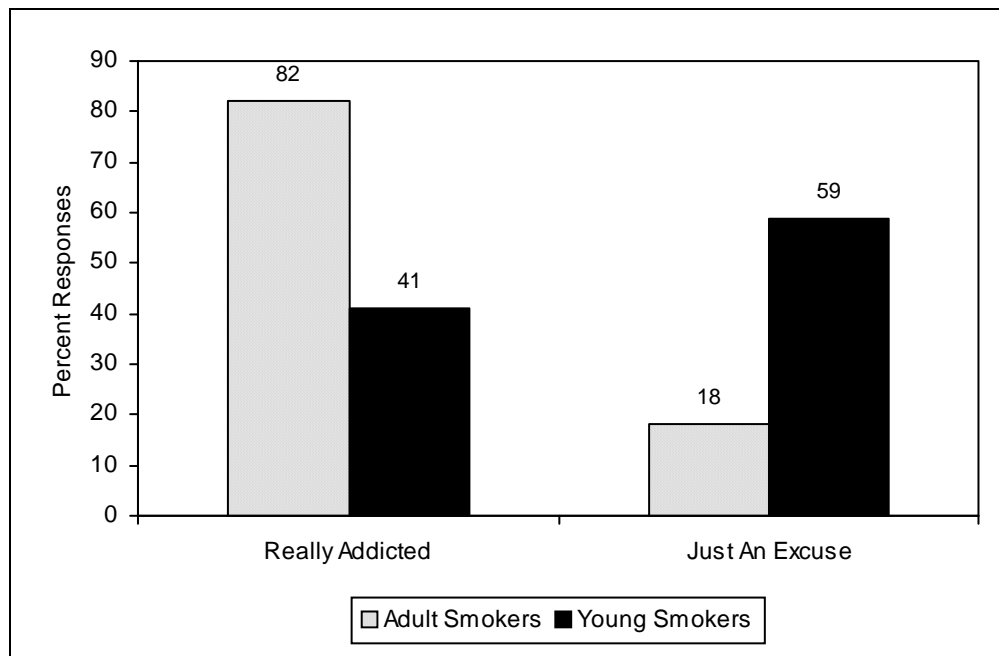


Figure 5.9 – Primary School Students' Perceptions of Whether Adult Smokers vs. Young Smokers Are Really Addicted

#### *Differences by Gender and School Year*

Chi-square tests of independence showed that there were no statistically significant associations in perceptions of addiction claims by gender (adult smokers:  $\chi^2 = .05$ ,  $df = 1$ ,  $p > .05$ ; youth smokers:  $\chi^2 = .005$ ,  $df = 1$ ,  $p > .05$ ).

For school year (Table 5.22), chi-square tests showed no statistically significant differences for perceptions relating to adult claims ( $\chi^2 = .897$ ,  $df = 1$ ,  $p > .05$ ).

However, perceptions relating to youth smokers were statistically significant – 65% of younger, compared to 52% of older respondents thought that youth smokers used addiction as an excuse to smoke while 35% of younger, compared to 48% of older respondents believed that youth smokers really were addicted ( $\chi^2 = 4.606$ ,  $df = 1$ ,  $p < .05$ ).

*Table 5.22*  
*Perceptions Of Whether Adults & Youths Are Addicted x School Year*

		School Year		
		%		
		Years 4 & 5 (n = 143)	Years 6 & 7 (n = 144)	Total (n = 287)
Adult Smokers	Just An Excuse	20	16	18
	Really Addicted	80	84	82
	Total	100	100	100
		Years 4 & 5 (n = 145)	Years 6 & 7 (n = 145)	Total (n = 290)
Youth Smokers	Just An Excuse	65	52	59
	Really Addicted	35	48	41
	Total	100	100	100

#### *Differences by Smoking Status*

Chi-square showed that perceptions about adult smokers by smoking status was not statistically significant ( $\chi^2 = .003$ ,  $df = 1$ ,  $p > .05$ ).

Perhaps reflecting that there were more smokers in the upper school years, significant differences were found for perceptions about youth smokers ( $\chi^2 = 7.848$ ,  $df = 1$ ,  $p < .01$ ). Triers/smokers were significantly more likely to believe that youth smokers who claimed to be addicted were really addicted while never smokers were significantly more likely to disbelieve such claims – 39% of never smokers compared to 67% of triers/smokers thought that youth smokers were really addicted, while 61% of never smokers compared to 33% of triers/smokers thought that youth smokers were just making excuses (Table 5.23).

Table 5.23  
Perceptions Of Whether Adults & Youths Are Addicted x Smoking Status

		Smoking Status		
		%		
		Never Smoker (n = 260)	Trier/Smoker (n = 27)	Total (n = 287)
Adult Smokers	Just An Excuse	18	19	18
	Really Addicted	82	81	82
	Total	100	100	100
		Never Smoker (n = 262)	Trier/Smoker (n = 27)	Total (n = 290)
Youth Smokers	Just An Excuse	61	33	59
	Really Addicted	39	67	41
	Total	100	100	100

### Perceived main reasons why adults smoke and why youths smoke

With respect to the second question ('select a single main reason why adults and young people smoke cigarettes'), Figure 5.10 shows that adult and youth smoking were viewed very differently by respondents.

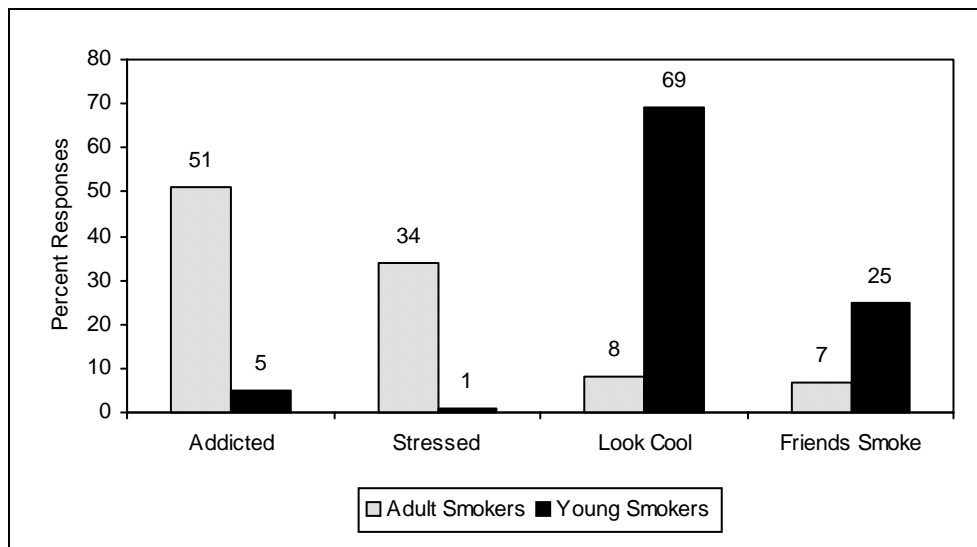


Figure 5.10 – Primary School Students' Perceptions of Why Adults vs. Young People Smoke

Primary reasons attributed to why adults smoke were addiction (51%) and stress (34%). Only 15% of respondents believed that adults smoke primarily for social (having friends who smoke) and image (wanting to look cool) reasons. In contrast,

these latter reasons were seen as the main drivers of why young people smoke – almost 70% of respondents believed that wanting to look cool and 25% believed that friends smoke cigarettes were main factors. Stress (1%) and addiction (5%) were not seen as primary reasons for why young people smoke.

#### *Differences by Gender and School Year*

Boys and girls were not significantly different in their perception of main reasons why adults smoke ( $\chi^2 = 5.380$ ,  $df = 3$ ,  $p > .05$ ) or why young people smoke ( $\chi^2 = 4.532$ ,  $df = 3$ ,  $p > .05$ ). However, although not statistically significant, more girls than boys in the study (58% vs. 45%) thought that addiction was the main reason why adults smoke while more boys than girls believed that stress was the primary motivation for adult smoking (39% vs. 29%). For youth smoking, although not statistically significant, more girls than boys believed the primary reason youths smoke was to look cool (75% vs. 64%) while more boys than girls thought that young people mainly smoke because their friends also smoke (30% vs. 21%).

Chi-square showed that school year approached statistical significance for perceptions of why adults were seen to smoke ( $\chi^2 = 15.995$ ,  $df = 9$ ,  $p < .06$ ), primarily via a systematic increase in the nomination of stress: 30% of Years Four and Five students, 35% of Year Sixes and 42% of Year Sevens (Figure 5.11). Similarly, although not statistically significant, 15% of Year Fours thought that adults smoke mainly to look cool, but this decreased to about 8% for Year Fives and Sixes, and 0% for Year Sevens.

In relation to perceptions of why young people smoke, Figure 5.12 shows a statistically significant developmental effect in how youth smoking is perceived. More younger than older respondents believed that youth smoking is mainly an image activity (i.e., an attempt to look cool) while more older than younger respondents saw youth smoking mainly as a social phenomenon (i.e., smoking because friends also smoke) ( $\chi^2 = 18.316$ ,  $df = 9$ ,  $p < .05$ ).

*Differences by Smoking Status*

Table 5.24 shows that over half of all never smokers thought that adults smoke mainly because they were addicted while one third thought that adult smokers mainly did so because they were stressed. Triers/smokers were evenly divided in reasons why adults mainly smoke – just under 40% thought that adult smokers were addicted or were stressed. However, chi-square test of independence showed that perceptions about adult smokers by smoking status were not statistically significant ( $\chi^2 = 1.887$ ,  $df = 3$ ,  $p > .05$ ).

In relation to youth smokers, chi-square showed that the distribution of results was statistically significant ( $\chi^2 = 8.318$ ,  $df = 3$ ,  $p < .05$ ). More triers/smokers selected ‘to look cool’ as a main reason than did never smokers (78% vs. 67% respectively), while more never smokers selected ‘friends smoke’ than did triers/smokers (27% vs. 7%).

*Table 5.24  
Perceptions Of Why Adults & Youths Smoke x Smoking Status*

		Smoking Status		
		Never Smoker (n = 266)	Trier/Smoker (n = 28)	Total (n = 294)
Adult Smokers	Friends Smoke	7	11	8
	Addicted	52	39	51
	Stress	33	39	34
	Look Cool	8	11	7
	Total	100	100	100
		Never Smoker (n = 266)	Trier/Smoker (n = 28)	Total (n = 294)
Youth Smokers	Friends Smoke	27	7	25
	Addicted	5	11	5
	Stress	1	4	1
	Look Cool	67	78	69
	Total	100	100	100

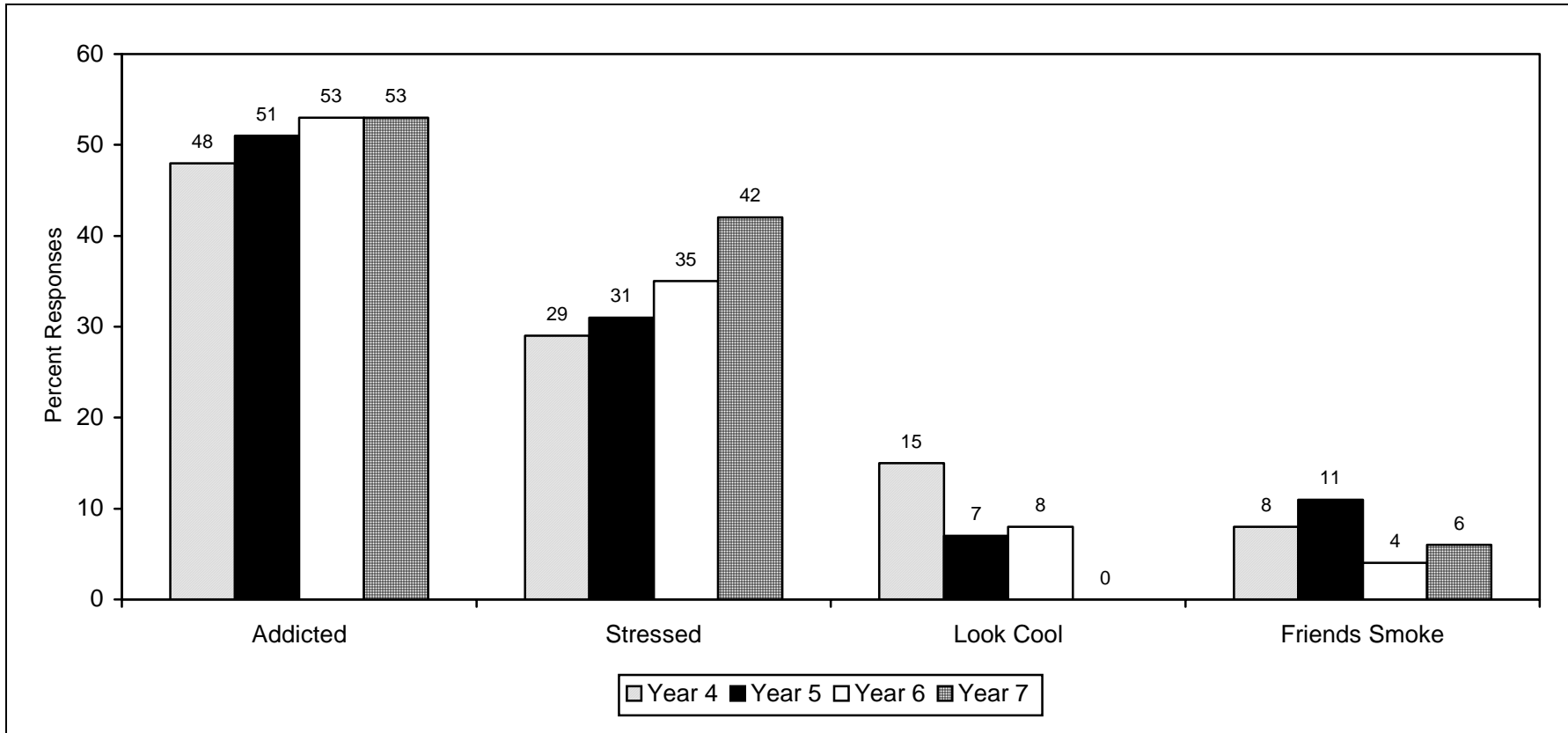


Figure 5.11 – Primary School Students' Perceptions of Why Adults Smoke x School Year

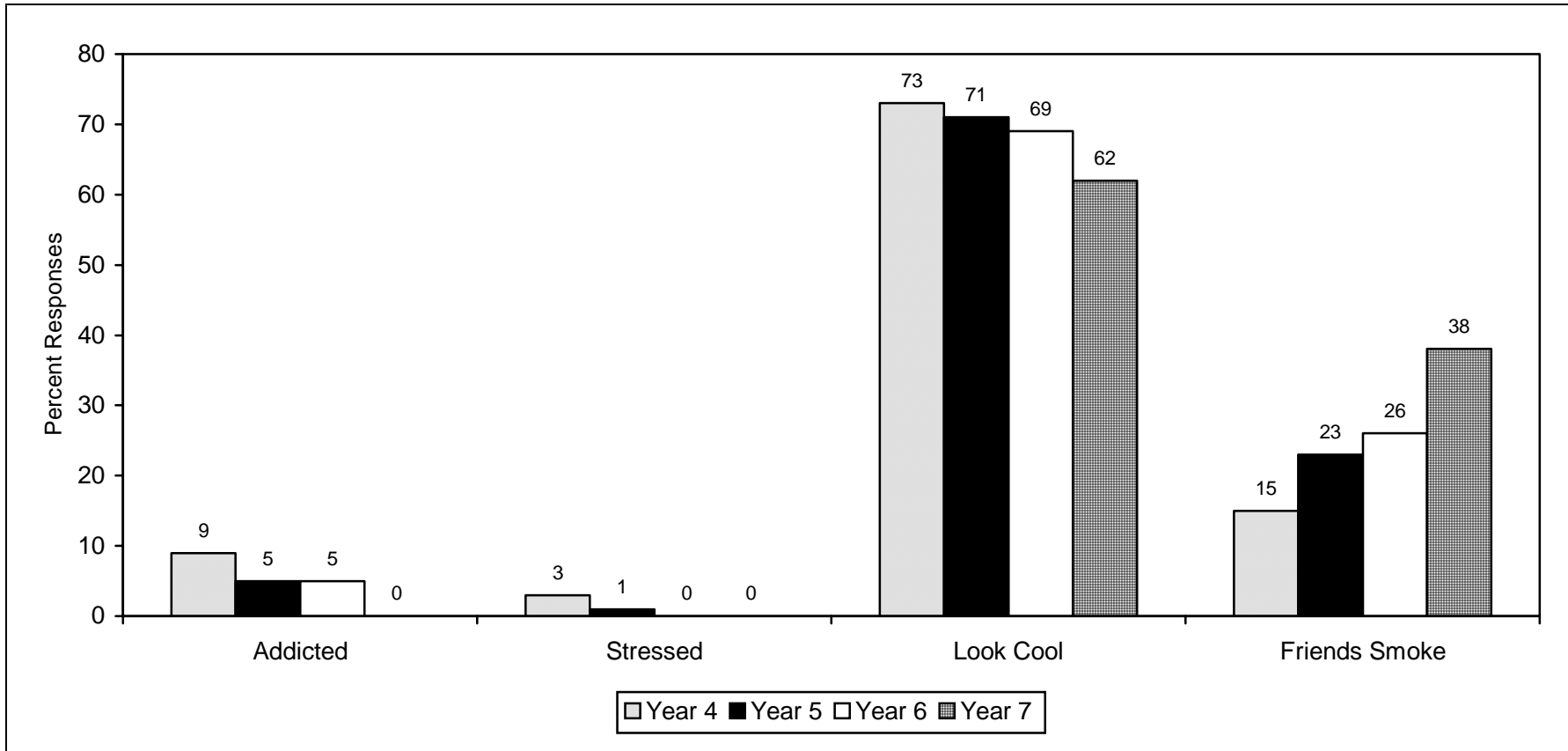


Figure 5.12 – Primary School Students' Perceptions of Why Youths Smoke x School Year



## Summary

The results in this section suggest that respondents have clear ideas about the role of addiction as a main motivator of adult and youth smoking behaviours. In broad terms, respondents believe that addiction is the main driver of adult but not youth smoking for which image or wanting to look cool is the primary reason. Even so, in relation to youth smoking, respondents nevertheless accept that young people can or do become addicted to smoking and that addiction plays a role in them continuing to smoke.

### 5.3.2.2 Perceptions of why people get addicted to smoking

The objective here was to explore the perceived reasons or causes of smoking addiction. All respondents were asked to select a main reason that explained why people get addicted to smoking. Six causes were provided:

1. Because cigarettes have got nicotine in them and that makes people can't stop smoking
2. Because cigarettes have a drug in them that makes people can't stop smoking
3. Because cigarettes have got lots of chemicals and poisons in them that make people can't stop smoking
4. Because people enjoy having cigarettes and so they don't want to stop smoking
5. Because people like the taste of cigarettes and so they don't want to stop smoking
6. Because people get used to smoking when doing things

In general, the six causes can be grouped as: (a) relating to the content of cigarettes (1, 2 and 3); (b) relating to pleasure from smoking (4 and 5); and (c) relating to habit (6). In the survey instrument, this grouping was not revealed and the six causes were presented to respondents randomly ordered.

Figure 5.13 shows almost 80% selected causes pertaining to the content of cigarettes – 39% of respondents selected ‘cigarettes contain a drug’, 29% selected ‘nicotine in cigarettes’, and 11% selected ‘cigarettes contain chemicals and poisons’. Only 12% selected reasons relating to pleasure (people enjoy cigarettes (8%) and people like the taste of cigarettes (4%)) and 9% selected habit (people get used to smoking).

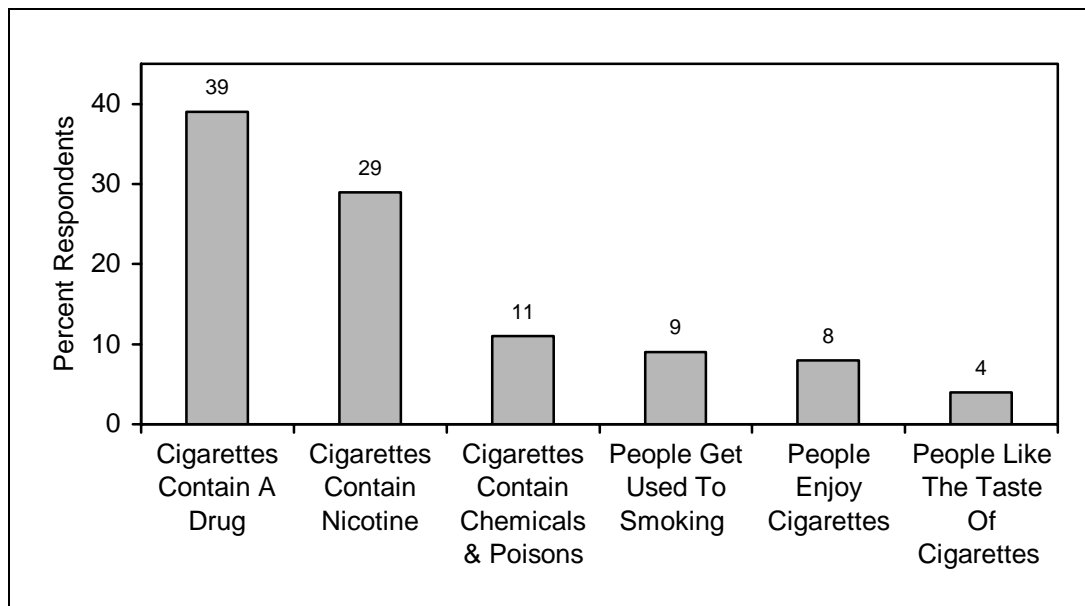


Figure 5.13 – Primary School Students' Perceptions of Why People Get Addicted To Smoking

In the analyses below, the six original categories of causes were combined into the three groups described in the introduction – (a) content of cigarettes; (b) pleasure of smoking; and (c) habit.

#### *Differences by Gender and School Year*

Boys and girls did not differ in their perceptions of why people become addicted to smoking ( $\chi^2 = 3.113$ ,  $df = 2$ ,  $p > .05$ ).

Figure 5.14 shows respondents' perceptions of addiction causes by school year. Chi-square approached significance ( $\chi^2 = 12.159$ ,  $df = 6$ ,  $p = .057$ ), indicating

that respondents across school years generally differed in their perceptions of why people get addicted.

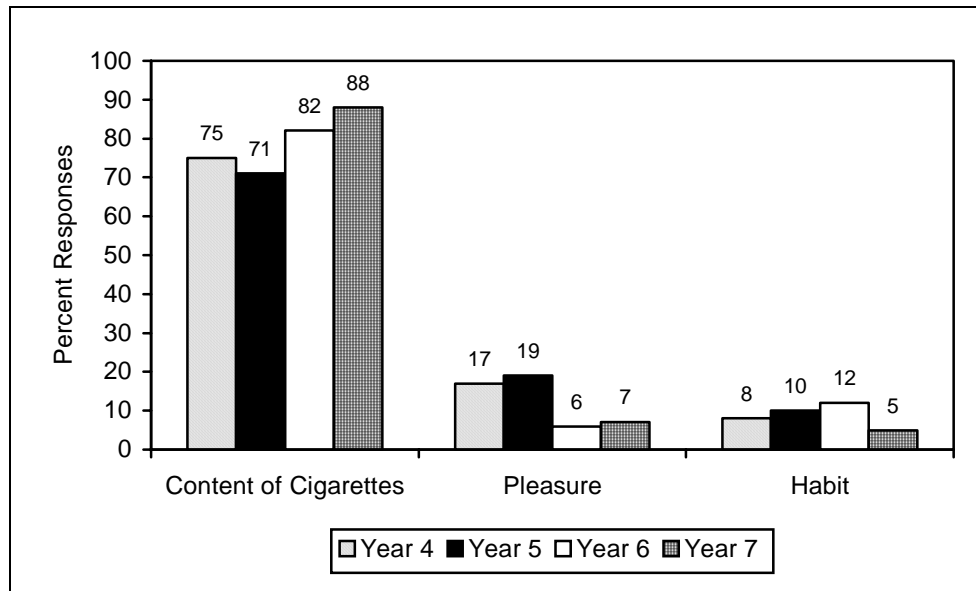


Figure 5.14 – Primary School Students' Perceptions of Why People Get Addicted To Smoking x School Year

Figure 5.14 shows that progressively more older than younger respondents selected causes relating to the content of cigarettes (75% of Year Four and 71% of Year Five students vs. 82% of Year Six and 88% of Year Seven students), while for younger respondents, pleasure causes appeared to be relatively more important than for older respondents – about 18% of Years Four and Five students selected this compared with about 7% of Years Six and Seven students.

#### *Differences by Smoking Status*

More triers/smokers than never smokers believed that people become addicted because they enjoy or like smoking (21% vs. 11% respectively) while the reverse was observed for ‘addicted because of habit’ (10% never smokers vs. 0% triers/smokers) ( $\chi^2 = 5.062$ ,  $df = 2$ ,  $p = .08$ ) (Table 5.25).

Table 5.25  
Perceptions Of Why People Get Addicted To Smoking x Smoking Status

Reasons Why People Get Addicted To Smoking	Smoking Status		
	Never Smoker (n = 264)	Trier/Smoker (n = 28)	Total (n = 292)
Content of Cigarettes	79	79	79
Pleasure	11	21	9
Habit	10	-	12
Total	100	100	100

### 5.3.2.3 Perceptions of when addiction occurs

All respondents were asked to state whether addiction happens:

- when people smoke all the time or
- when people smoke sometimes/occasionally or
- when people smoke just once

Figure 5.15 shows that more than half of all respondents (54%) thought that addiction occurs when cigarettes are smoked persistently. One quarter thought that smoking occasionally would lead to addiction while 21% believed that smoking just once was sufficient.

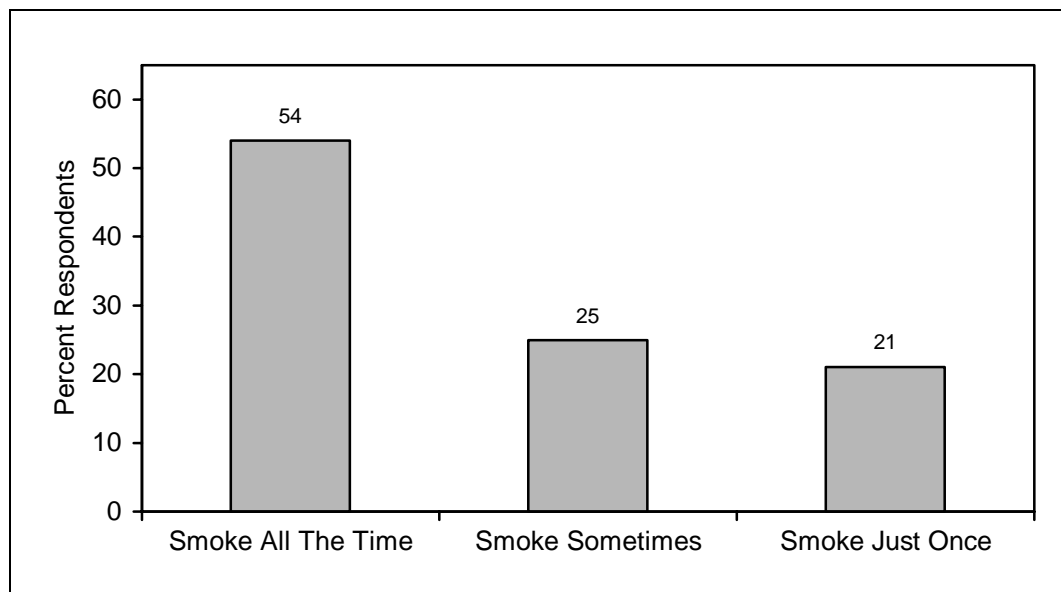


Figure 5.15 – Primary School Students' Perceptions of When Addiction happens

*Differences by Gender and School Year*

Figure 5.16 shows that girls were more likely than boys to select ‘smoking all the time’ and ‘smoking just once’, and boys were more likely than girls to select ‘smoking sometimes’ ( $\chi^2 = 21.061, df = 2, p < .05$ ).

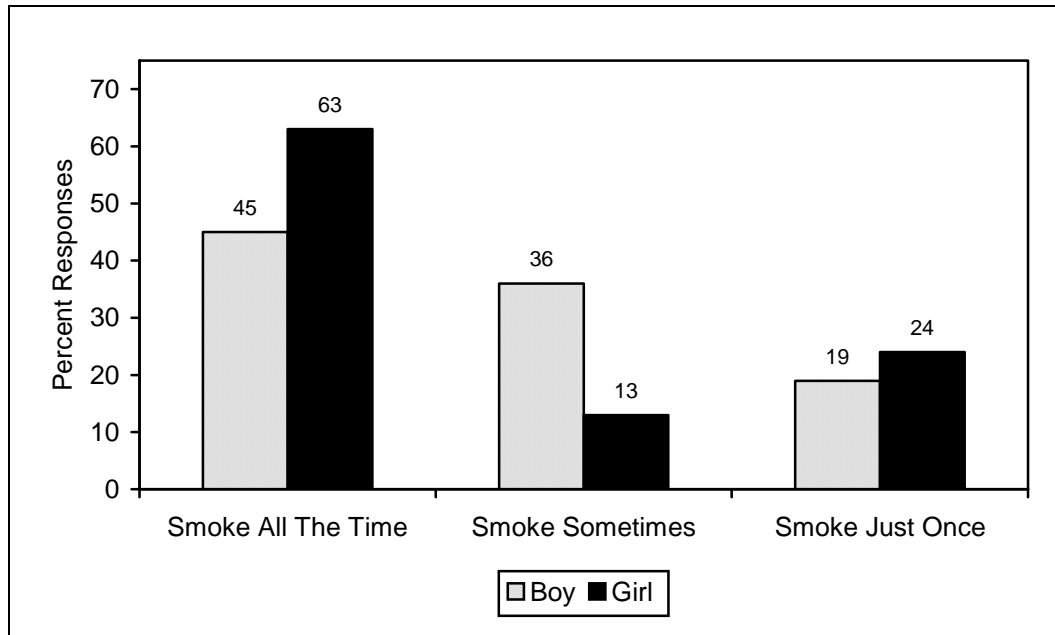


Figure 5.16 – Primary School Students' Perceptions of When Addiction Happens x Sex

Figure 5.17 shows perceptions of addiction occurrence by school year ( $\chi^2 = 12.741, df = 6, p < .05$ ). ‘Smoke all the time’ progressively decreased as school year increased (69% of Year Four students vs. 54% of Year Fives vs. 51% of Year Sixes vs. 43% of Year Sevens). Conversely, the percentage of respondents who selected the response ‘smoke just once’ appeared to increase from Year Four to Years Five and above (10% of Year Four students vs. 23% of Year Fives vs. 26% of Year Sixes vs. 27% of Year Seven), while ‘smoke sometimes’ increased after Year Six.

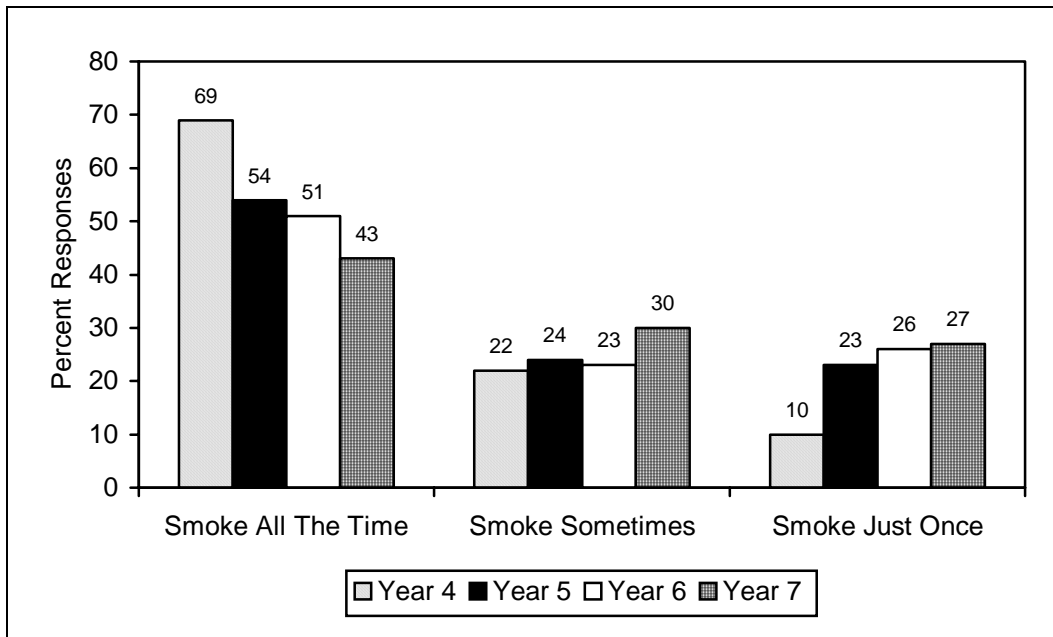


Figure 5.17 – Primary School Students' Perceptions of When Addiction Happens x School Year

*Differences by Smoking Status*

Table 5.26 shows that substantially more never smokers than triers/smokers believed that addiction happens when people smoke just once (22% vs. 11% respectively) while considerably more triers/smokers than never smokers thought that addiction happens when people smoke sometimes (37% vs. 24% respectively). However, these results were not statistically significant ( $\chi^2 = 3.260$ ,  $df = 2$ ,  $p > .05$ ).

Table 5.26  
Perceptions Of When Addiction Happens x Smoking Status

Addiction Happens When People...	Smoking Status		
	Never Smoker (n = 262)	Trier/Smoker (n = 27)	Total (n = 289)
Smoke All The Time	54	52	54
Smoke Sometimes	24	37	25
Smoke Just Once	22	11	21
Total	100	100	100

#### **5.3.2.4 Perceptions of what it means to be addicted to smoking**

In relation to what being addicted to smoking means, two questions were asked – one to determine the perceived meaning or definition of smoking addiction, the other to determine its perceived consequences.

##### **Perceived meaning of addiction**

For the meanings of smoking addiction, all respondents were asked: ‘*when someone is addicted to smoking, it mainly means that...*’. The following responses were provided:

1. They smoke automatically without thinking
2. They get used to smoking when doing things
3. They enjoy smoking
4. They like the taste of smoking
5. They have no control over their smoking
6. They have a craving to keep smoking
7. When they see people smoking, then they just want to smoke too

Broadly, the above statements define addiction in terms of habituation (1 and 2), pleasure (3 and 4), loss of control (5), withdrawal (6) and socialisation (7). In the survey instrument, these categories of meanings were not revealed and the seven statements were presented to respondents randomly ordered.

Figure 5.18 shows the most frequently nominated categories were being addicted to smoking in terms of loss of control (43%) and being addicted in terms of having cravings (37%). The remaining categories were not selected by any significant number of respondents.

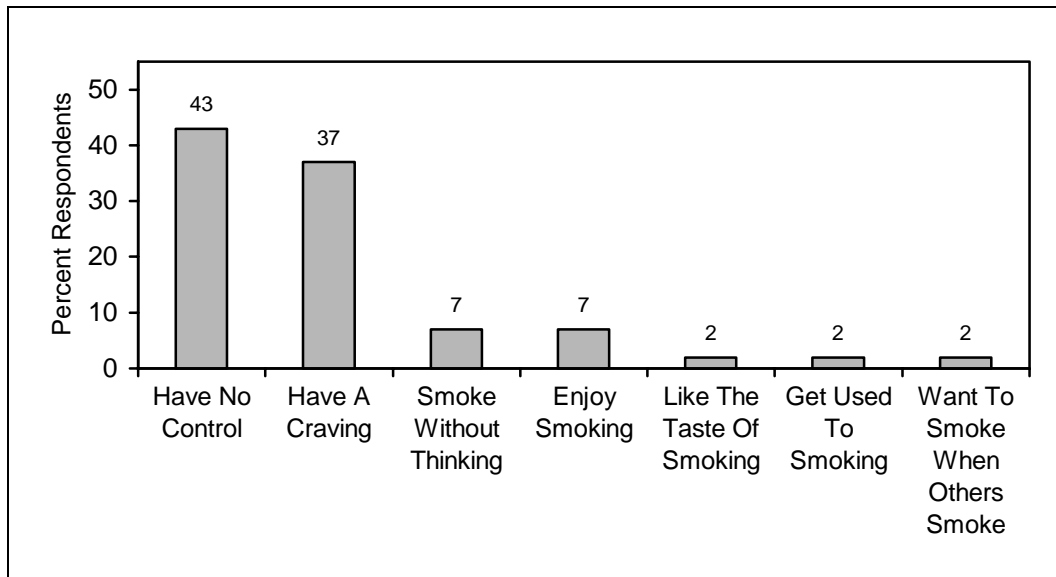


Figure 5.18 – Primary School Students' Perceptions of What It Means To Be Addicted To Smoking

In the analyses below, several response categories were combined to increase the number of cases within some categories and to reflect the five categories of meanings of addiction described in the introduction. Specifically, ‘smoking automatically without thinking’ and ‘get used to smoking’ were combined into a ‘habit’ category; while ‘enjoying smoking’ and ‘liking the taste of smoking’ were consolidated into a ‘pleasure’ category. Remaining responses – ‘have a craving’, ‘smoke when other people smoke’ and ‘have no control over smoking’ – were not altered.

#### *Differences by Gender, School Year and Smoking Status*

There were no significant differences by gender ( $\chi^2 = 7.695$ ,  $df = 4$ ,  $p > .05$ ) or smoking status ( $\chi^2 = 4.052$ ,  $df = 4$ ,  $p > .05$ ).

Figure 5.19 shows definitions by school year. Figure 5.19 shows that ‘losing control’ decreases systematically with year (60% of Year Four to 29% at Year Seven), while ‘having cravings’ increases systematically (from 22% at Year Four to 62% at Year Seven) ( $\chi^2 = 39.068$ ,  $df = 12$ ,  $p < .01$ ).



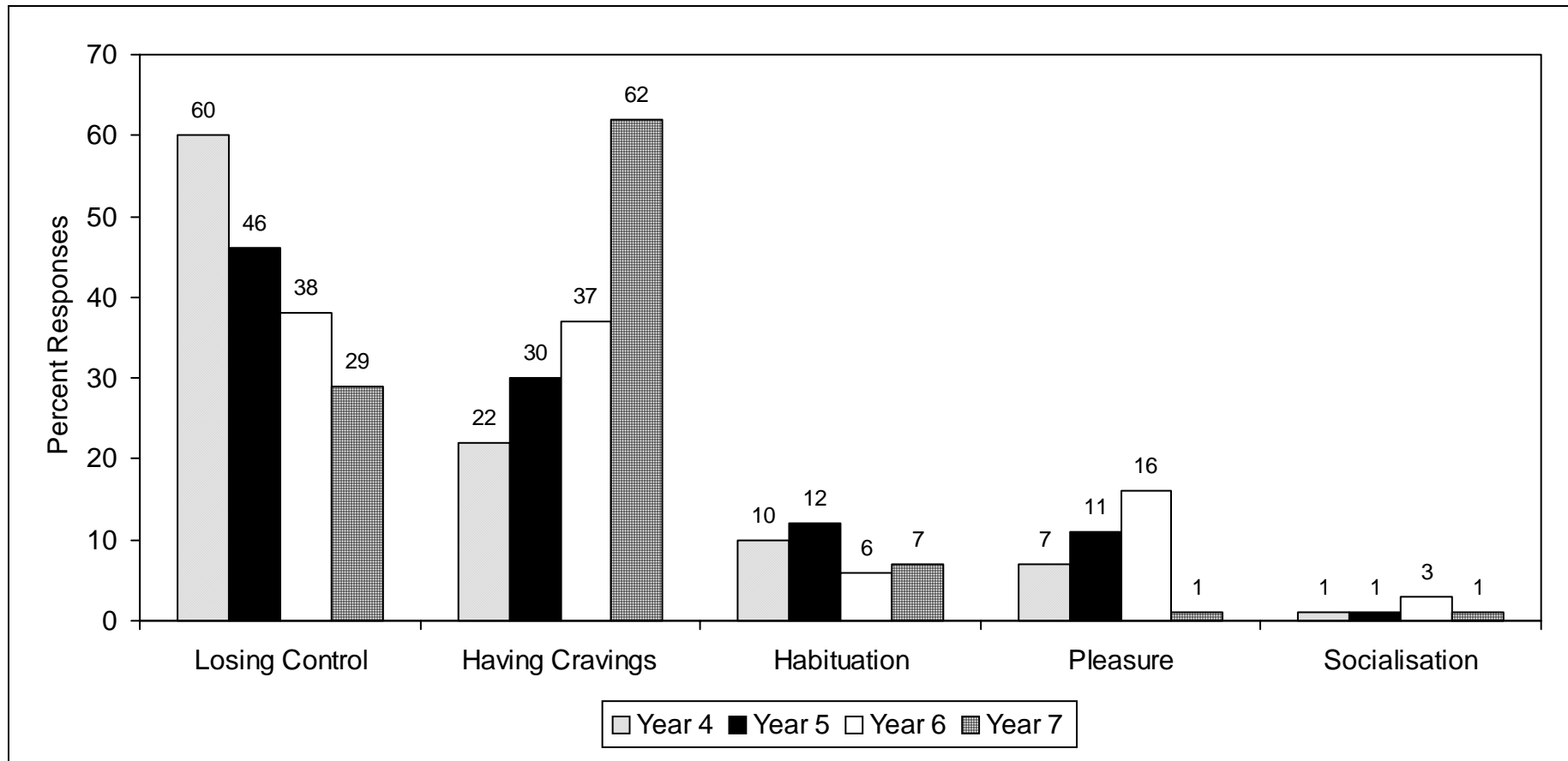


Figure 5.19 – Primary School Students' Perceptions of Addiction Meanings x School Year

### Perceived consequences of addiction

Respondents' perceptions of the consequences of smoking addiction were measured by asking: 'what do you think is the single worst thing about being addicted to smoking?'. The following responses were provided:

- You smoke more than you want to
- You get a craving in your body
- You feel bad when you can't have a cigarette
- You get in trouble at home for smoking
- You get in trouble at school for smoking
- You have no control over smoking

Figure 5.20 shows that having no control (48%) and having cravings (25%) were again the top two responses obtained.

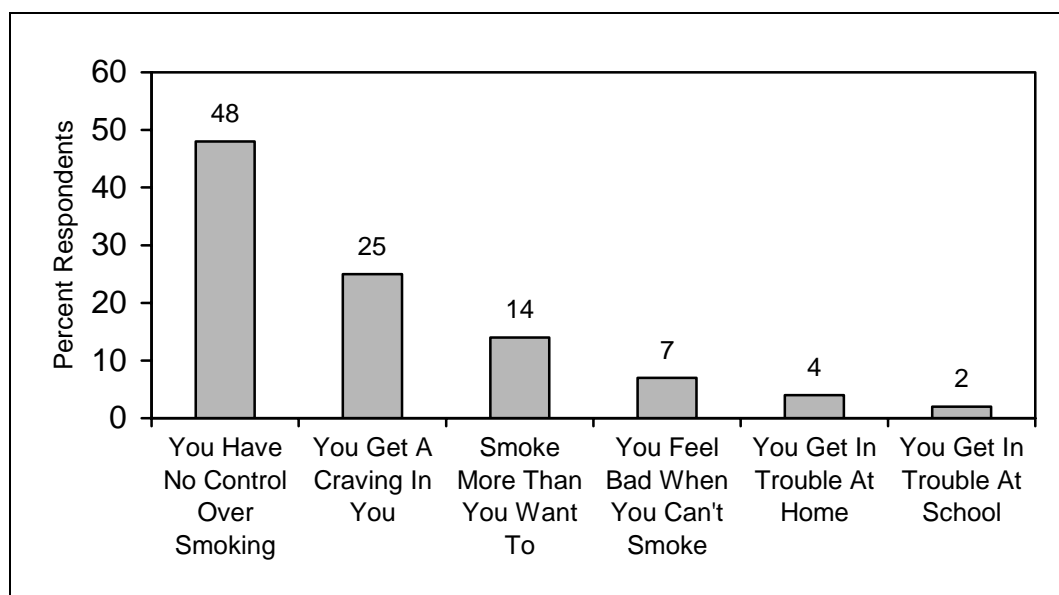


Figure 5.20 – Primary School Students' Perceptions of the Single Worst Thing about Being Addicted To Smoking

To increase the number of cases within some categories, the six original statements were reduced to three categories. Specifically, 'have no control' and 'smoke more than you want' were combined into a 'losing control' category, 'get

a craving' and 'feel bad when you can't have a cigarette' were combined into a 'having cravings' category, and 'get in trouble at home' and 'get in trouble at school' were consolidated into a 'getting in trouble' category. Aggregated responses were used in the following analyses.

*Differences by Gender and School Year*

Boys and girls did not differ significantly in their perceptions of addiction consequences ( $\chi^2 = 1.472$ ,  $df = 2$ ,  $p > .05$ ).

Figure 5.21 shows perceptions of consequences by school year. As observed previously in perceptions of what it means to be addicted, the selection of 'losing control' generally decreases from Year Four to Year Seven while the selection of 'having cravings' increases beyond Year Four ( $\chi^2 = 18.550$ ,  $df = 6$ ,  $p < .01$ ).

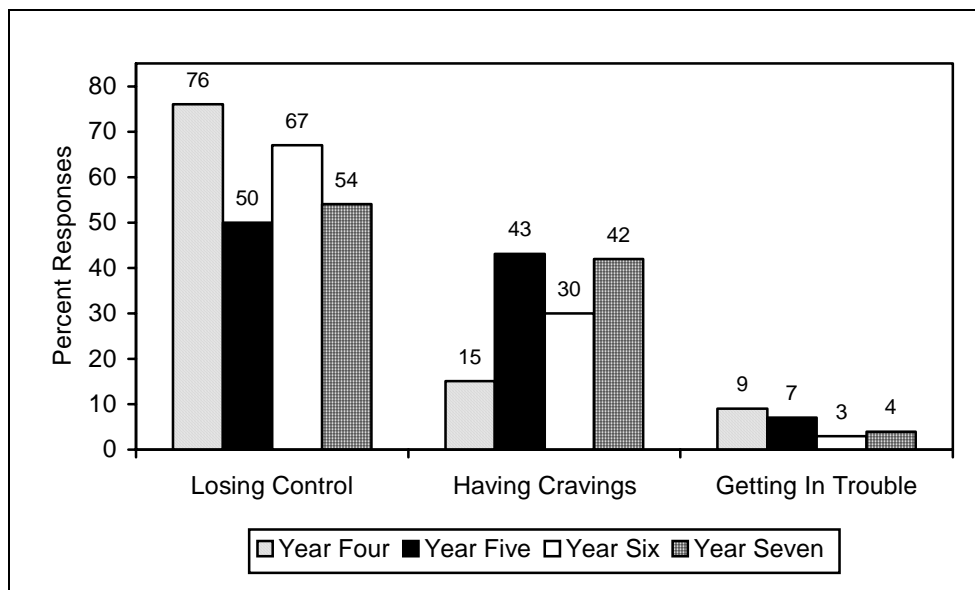


Figure 5.21 – Primary School Students' Perceptions of Addiction Consequences x School Year

*Differences by Smoking Status*

Table 5.27 shows that never smokers and triers/smokers perceived the consequences of smoking addiction differently. Significantly more triers/smokers than never smokers perceived the worst consequence of smoking addiction as

cravings (48% vs. 31% respectively) or getting in trouble (20% vs. 4%), while substantially more never smokers than triers/smokers perceived the worst consequence to be loss of control (65% vs. 32%) ( $\chi^2 = 16.135$ ,  $df = 2$ ,  $p < .01$ ).

*Table 5.27*  
*Perceptions Of Consequences Of Smoking Addiction x Smoking Status*

The Worst Thing About Being Addicted to Smoking Is	Smoking Status		
	Never Smoker (n = 261)	Trier/Smoker (n = 25)	Total (n = 286)
Loss Of Control	65	32	62
Cravings	31	48	33
Get In Trouble	4	20	5
Total	100	100	100

### Summary

In summary, results from both the analyses of perceived meanings and consequences of smoking addiction suggest that respondents generally associate addiction with its perceived consequences. In describing what smoking addiction means and what its worst consequences are, respondents emphasised losing control and having cravings for both. Overall however, losing control was seen as the most significant aspect of addiction in terms of what it means and what effect it has. Developmental trends were found to influence the extent that losing control was perceived as a central issue of smoking addiction. Broadly, losing control appeared to be a more important concern for younger respondents while having cravings were more important for those older.

### Hypothesis H2 – Losing Control

It was hypothesised (H2) that issues of control would be more salient for never smokers than for current smokers. In respect of both defining what it means to be addicted to smoking and perceiving what the worst consequence of being addicted to smoking is, never smokers were significantly more likely than current smokers to nominate ‘loss of control’. Specifically, comparing definitions of what it means to be addicted to smoking, 44% of never smokers compared to 35% of current smokers nominated ‘loss of control’ from a given list of seven possible meanings.

Similarly, in nominating what the single worst consequence of being addicted to smoking is, 65% of never smokers compared to 32% of current smokers selected 'loss of control' from a given list of six possible consequences. Overall, these results support the stated hypothesis.

### **5.3.3 Perceptions of smoking addiction and intentions to smoke**

This section explores the relationship between primary school students' perceptions of smoking addiction and intentions to smoke cigarettes. In particular, perceptions of whether trying smoking is possible without becoming addicted, whether addiction happens immediately, whether addiction can be avoided and concerns of becoming addicted were investigated.

Differences by gender, school year and smoking status are included as part of the overall investigation of respondents' addiction beliefs. However, the main focus in the following sub-sections is on the relationship between never smokers' intentions to try smoking and beliefs about addiction. Results for never smokers' long-term smoking intentions (i.e., intentions to become a regular smoker) are presented for comparisons. Logistic regression analyses were used to specify the relationship between beliefs and intentions to smoke, and to quantify each relationship in terms of a probability outcome (Field, 2003). Two sets of probability outcomes (odds ratios or ORs) were calculated. Variables (i.e., respondents' perceptions) were computed separately to derive a series of crude or single factor models (SFM) for the first set of probability or odds analyses. Individual variables were then analysed again with gender and school year as covariates to derive a second series of adjusted models involving multiple factors.

All variables were entered as categorical predictors in the models and the Simple (First) Contrast method was used to contrast the individual effect of categories within those predictors (e.g., 1 (reference category) vs. 2; 1 vs. 3; 1 vs. 4, etc) (Field, 2003). Regressions involving multiple variables used the Forced Entry Method (i.e., covariates were entered into the model as one block (Field, 2003)).

### *Intentions to Smoke Cigarettes*

In the analyses below, never smokers' intentions to smoke cigarettes were separated into intentions to try smoking and intentions to take up regular smoking (i.e., intentions to become a regular smoker). As discussed in the methodology (chapter four), intentions to try smoking is typically just to trial or experience what smoking is like; that is, it is experimental and short term (non-permanent). In contrast, the intention to take up regular smoking relates to smoking that is regular and persistent; i.e., it is carried on over a long period of time, usually into adulthood.

In the survey instrument, intentions to try smoking and intentions to take up regular smoking were determined by asking never smokers whether they...

- might like to try smoking just to see what smoking is like?

and whether they...

- would like to take up smoking when older?

These intentions are shown in Figure 5.22.

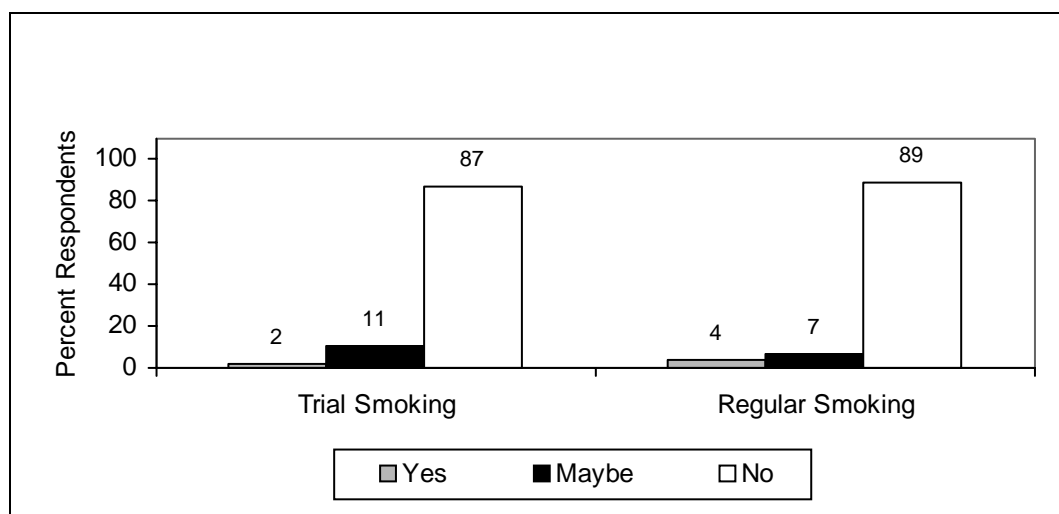


Figure 5.22 – Primary School Never Smokers' Intentions to Smoke

Figure 5.22 shows that the vast majority of never smokers did not believe they would either trial or take up regular smoking. For trial smoking, 87% said ‘no’ to intentions to try, 11% said ‘maybe’ and 2% said ‘yes’. For regular smoking, 89% said ‘no’ to intentions to take up regular smoking, 7% said ‘maybe’ and 4% said ‘yes’.

Table 5.28 shows the relationship between intentions to try and intentions to take up regular smoking (‘yes’ and ‘maybe’ responses combined). As would be expected, intentions not to try smoking generally corresponded with intentions not to take up regular smoking: 94% of those not intending to trial also stated they did not intend to take up smoking when older. Conversely, a significant percentage of respondents who answered ‘yes’ and ‘maybe’ to trying cigarettes did intend to carry on smoking regularly: 43%.

*Table 5.28  
Intentions To Try Smoking x Intentions To Take Up Regular Smoking*

Intentions To Take Up Regular Smoking	Intentions To Try Smoking		Total (n = 258)
	Yes/Maybe (n = 35)	No (n = 223)	
Yes/Maybe	43	6	11
No	57	94	89
Total	100	100	100

Where appropriate, analyses in the following sections are carried out separately for intentions to try and intentions to take up regular smoking.

#### *Differences by Gender and School Year*

Overall, no statistically significant differences were found for intentions to try and intentions to take regular smoking by gender (try smoking:  $\chi^2 = 2.093$ ,  $df = 1$ ,  $p > .05$ ; regular smoking:  $\chi^2 = .038$ ,  $df = 1$ ,  $p > .05$ ).

Results by school year (Table 5.29) were not statistically significant for intentions to try smoking ( $\chi^2 = .582$ ,  $df = 1$ ,  $p > .05$ ) but significant for intentions to take up



regular smoking – older students were more likely than younger students to have no intentions to become regular smokers ( $\chi^2 = 5.799$ ,  $df = 1$ ,  $p < .05$ ).

Table 5.29  
Intentions To Smoke x School Year

	Intentions To Try Smoking			Intentions To Take Up Regular Smoking		
	%			%		
	Years 4 & 5 (n = 134)	Years 6 & 7 (n = 128)	Total (n = 262)	Years 4 & 5 (n = 133)	Years 6 & 7 (n = 126)	Total (n = 259)
Yes/Maybe	15	12	13	16	6	11
No	85	88	87	84	94	89
Total	100	100	100	100	100	100

### 5.3.3.1 Opportunities for smoking without becoming addicted

This section explores respondents' perceptions of smoking without becoming addicted. Two questions examined respondents' perceptions of this. The first question asked never smokers whether they thought it was possible to try smoking without becoming addicted (response categories: 'yes', 'maybe' or 'no'). The second question asked all respondents (i.e., never smokers and triers/smokers) to state how quickly they thought addiction happens (this question is further discussed below).

#### Perceived opportunity to try smoking without becoming addicted

In relation to the first question, Figure 5.23 shows that 63% of never smokers did not believe that trying smoking was possible without becoming addicted while 37% thought that this was, or maybe was, possible.

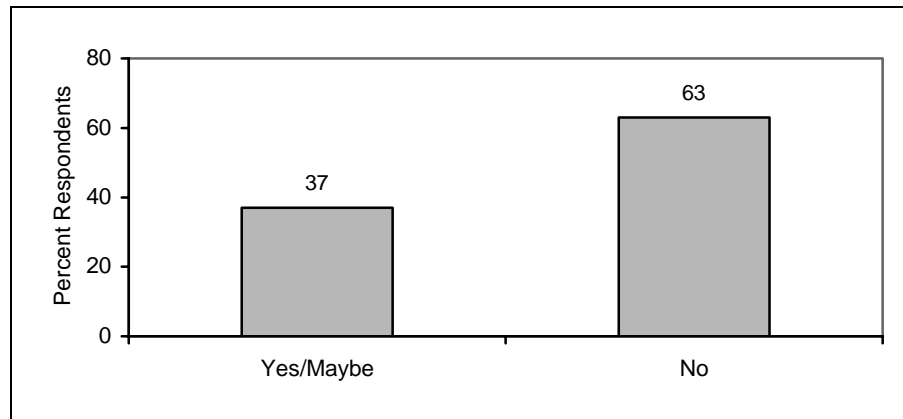


Figure 5.23 – Primary School Never Smokers' Perceptions of Trial Smoking:  
Can You Try Smoking Without Getting Addicted?

*Differences by Gender and School Year*

No statistically significant differences were found for perceptions of trying smoking without becoming addicted by gender ( $\chi^2 = .558$ ,  $df = 1$ ,  $p > .05$ ).

Similarly, no statistically significant results were found for school year ( $\chi^2 = 1.695$ ,  $df = 1$ ,  $p > .05$ ), although Figure 5.24 shows that more younger than older students believed it was possible to try smoking without becoming addicted, while more older than younger students believed this was not possible.

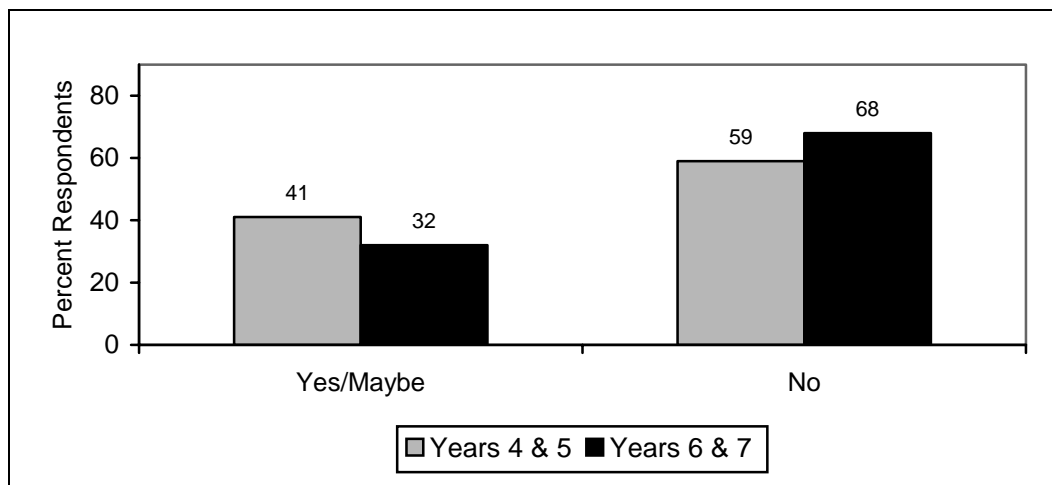


Figure 5.24 – Primary School Never Smokers' Perceptions of Trial Smoking:  
Can You Try Smoking without Getting Addicted x School Year

*Smoking Intentions and perceived opportunity to try smoking without becoming addicted*

From Table 5.30, never smokers who believed that it was possible to try smoking without becoming addicted, were significantly more likely to have intentions to do so vs. those who thought it was not possible (unadjusted OR 4.91). The odds of never smokers intending to try smoking were slightly higher with gender and school year included as covariates in the model (adjusted OR 5.13; 95% CI 1.94 – 13.53).

Table 5.30

Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Can You Try Smoking Without Becoming Addicted?	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
- No	1.00	1.00			1.00	1.00		
- Yes/Maybe	4.91**	5.13**	0.01	1.94 – 13.53	3.04*	3.05*	0.03	1.15 – 8.10

\* p < .05; \*\* p < .01

Intentions to take up regular smoking were similarly related to beliefs about whether trying smoking was possible without becoming addicted. Table 5.30 shows that never smokers were three times (SFM) more likely to have intentions to take up regular smoking if they believed trying was not addicting. This was not substantially altered by the inclusion of gender and school year in the regression model (adjusted OR 3.05; 95% CI 1.15 – 8.10).

### **Perceptions of how quickly addiction happens**

With respect to the second question, all respondents were asked to state how quickly they thought addiction happens. The question was open-ended but respondents were prompted to answer in number of cigarettes, in number of times smoking or in length of time.

For number of cigarettes, responses ranged from 1 cigarette to 50 cigarettes, and from ‘a few’ cigarettes to ‘lots’. For number of times, responses ranged from 1 time to 24 times and from ‘a few’ times to ‘lots’ of times. For length of time, responses ranged from 1 to several days, weeks and months. These different responses were categorised as follows:

- Immediate – addiction happens after smoking 1 cigarette, 1 time or 1 day
- Small delay – addiction happens after smoking 2 to 9 cigarettes; smoking 2 to 9 times; smoking a few cigarettes; smoking a few times; smoking for a few days
- Big delay – addiction happens after smoking 10 or more cigarettes; smoking 10 or more times; smoking lots of cigarettes; smoking lots of times; smoking for a few weeks or months

As in the exploration above, the objective was to determine respondents’ perceptions of whether trying smoking was possible without becoming addicted: if addiction is perceived to happen immediately, then trying smoking will not be

possible without becoming addicted; on the other hand, if addiction is perceived to happen after a ‘small’ or ‘big’ delay, smoking trials can be conducted in the periods before addiction happens.

Figure 5.25 shows that respondents were almost equally divided in their perceptions of when smoking addiction happens – 30% thought that smoking addiction happens immediately, 32% thought that it happens after a ‘small’ delay and 38% thought that it happens after a ‘big’ delay.

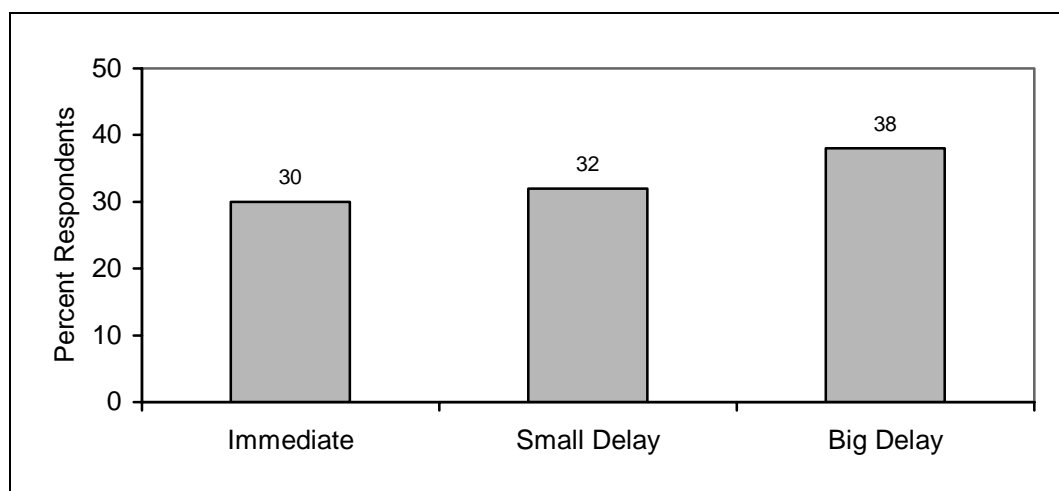


Figure 5.25 – Primary School Students' Perceptions of When Addiction Happens

#### *Differences by Gender and School Year*

For gender, results were not statistically significant ( $\chi^2 = 3.466$ ,  $df = 2$ ,  $p > .05$ ). However, Table 5.31 shows that slightly more boys than girls believed addiction happens immediately (33% vs. 27% respectively) while more girls than boys thought there was a small delay (39% vs. 28% respectively).

Table 5.31  
Perceptions Of When Smoking Addiction Happens x Sex

Perceptions of When Smoking Addiction Happens	Gender		Total (n = 252)
	Boy (n = 104)	Girl (n = 148)	
Immediate	33	27	29
Small Delay	28	39	35
Big Delay	39	34	36
Total	100	100	100

Results were statistically significant for school year ( $\chi^2 = 12.848$ ,  $df = 2$ ,  $p < .01$ ). Table 5.32 shows that students in Years 4 and 5 were more likely than those in Years 6 and 7 to believe that addiction happens after a ‘big’ delay (43% versus 28% respectively). On the other hand, almost twice as many Years 6 and 7 students (than Years 4 and 5) thought addiction happen after a ‘small’ delay.

*Table 5.32  
Perceptions Of When Smoking Addiction Happens x School Year*

Perceptions of When Smoking Addiction Happens	School Year		
	%		
	Years 4 & 5 (n = 129)	Years 6 & 7 (n = 122)	Total (n = 251)
Immediate	32	26	29
Small Delay	25	46	35
Big Delay	43	28	36
Total	100	100	100

#### *Differences by Smoking Status*

Table 5.33 shows that more never smokers than triers/smokers believed that addiction to smoking happens immediately (30% vs. 20% respectively). However, the result was not statistically significant ( $\chi^2 = 2.772$ ,  $df = 2$ ,  $p > .05$ ).

*Table 5.33  
Perceptions Of When Smoking Addiction Happens x Smoking Status*

Perceptions of When Smoking Addiction Happens	Smoking Status		
	%		
	Never Smoker (n = 226)	Trier/Smoker (n = 20)	Total (n = 246)
Immediate	30	20	30
Small Delay	32	50	33
Big Delay	38	30	37
Total	100	100	100

#### *Smoking Intentions and perceptions of how quickly addiction happens*

The odds ratios pertaining to the above results are presented in Table 5.34. Overall, the odds of intentions to try smoking increases substantially with perceptions that addiction is delayed. Never smokers who believed addiction happens after a ‘small’ delay were 1.82 times (SFM) more likely to have intentions to try smoking compared to those who believed addiction happens

immediately. Those who believed addiction happens after a 'big' delay showed the greatest odds of having intentions to try smoking: 3.73 times (SFM) more than those who thought addiction happens immediately. Inclusion of gender and school year as covariates in the regression model did not substantially alter the results, although only 'big delay' was statistically significant.

Similar results were observed in relation to intentions to take up regular smoking. From Table 5.34, respondents were 1.97 times and 3.10 times more likely (SFM) to have intentions to take up regular smoking if they believed addiction happens after a small and big delay respectively. Inclusion of gender and school year in the regression model did not alter the overall relationship.

### **Hypothesis H1 – Smoking without Becoming Addicted**

It was hypothesised (H1) that for never smokers, intentions to try smoking would be positively associated with perceptions that trying smoking was possible without becoming addicted. The two investigations in this section support the stated hypothesis. In the first investigation, which explored perceptions of whether it was possible to try smoking without becoming addicted, respondents who believed this was possible were substantially more likely to state that they intended to try smoking than those who did not believe this was possible. In the second investigation, which explored perceptions of the immediacy of addiction, respondents who believed that addiction happened after a 'big' delay were significantly more likely to have intentions to try smoking compared to those who thought addiction happened immediately.

These relationships were also found in relation to never smokers' long-term smoking intentions and indicate that perceived opportunities to smoke without becoming addicted are related to intentions to smoke in general.



Table 5.34

Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

When Does Addiction Happen?	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
- Immediately	1.00 <sup>a</sup>	1.00 <sup>a</sup>			1.00 <sup>a</sup>	1.00 <sup>a</sup>		
- Small delay	1.82	2.04	0.24	0.62 – 6.65	1.97	2.37	0.16	0.71 – 7.96
- Big delay	3.73*	3.72*	0.02	1.29 – 10.69	3.10*	2.96 <sup>+</sup>	0.05	0.98 – 8.92

\* p < .05; \*\* p < .01; + p < .10

<sup>a</sup> Simple (First) Contrast used – i.e., Immediate vs. Small Delay; Immediate vs. Big Delay.

### 5.3.3.2 Avoidance strategies

The objective here was to explore respondents' perceptions in relation to beliefs about whether smoking addiction can be avoided. All respondents were asked 'do you think you can try smoking without getting addicted?' if each of two avoidance strategies were used. The strategies were: (a) by deliberately not enjoying smoking; and (b) by deliberately not liking the taste of smoking. Figure 5.26 shows responses for both strategies.

Overall, about two thirds of respondents believed it was possible (i.e., 'yes' and 'maybe' responses) to deliberately avoid becoming addicted to smoking by the methods suggested while about one third disagreed.

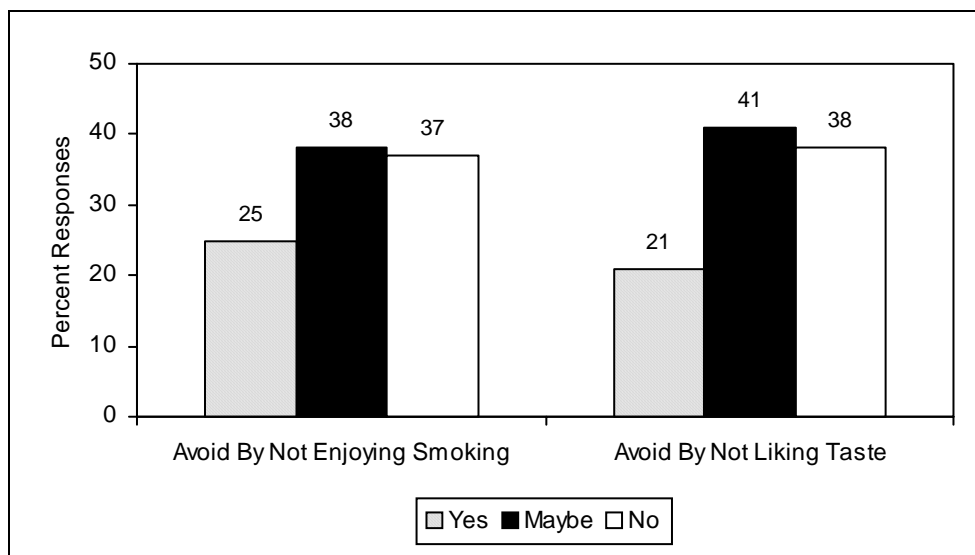


Figure 5.26 – Primary School Students' Perceptions of Addiction Avoidance Strategies

#### *Differences by Gender and School Year*

For gender, no statistically significant differences were found in relation to perceptions of either strategy (not enjoy:  $\chi^2 = 3.652$ ,  $df = 2$ ,  $p > .05$ ; not like the taste:  $\chi^2 = 2.908$ ,  $df = 2$ ,  $p > .05$ ). However, more girls than boys did not believe either strategy would help avoid addiction (41% of girls vs. 32% of boys thought that the first strategy (deliberately not enjoy smoking) would not help avoid

addiction; and 42% of girls vs. 33% of boys thought that the second strategy (deliberately not like the taste of smoking) would not help avoid addiction.

On the other hand, statistically significant differences were found in relation to school year (not enjoy:  $\chi^2 = 19.945$ ,  $df = 2$ ,  $p < .01$ ; not like the taste:  $\chi^2 = 15.905$ ,  $df = 2$ ,  $p < .01$ ). Table 5.35 shows that younger, compared to older, students were more likely to believe that one or other of the strategies would help avoid becoming addicted to smoking: 36% of Years Four and Five compared to 14% of Years Six and Seven thought that addiction could be avoided by deliberately not enjoying smoking; and 31% of Years Four and Five compared to 12% of Years Six and Seven believed deliberately not liking the taste of smoking could avoid addiction.

Conversely, Table 5.35 shows that older, compared to younger, students were more likely not to believe that either strategy would work: 45% of older students compared to 28% of younger students thought that deliberately not enjoying smoking would not avoid addiction; and 43% compared to 31% respectively thought that deliberately not liking the taste would not avoid addiction.

*Table 5.35  
Perceptions Of Addiction Avoidance Strategies x School Year*

		School Year		
		%		
		Years 4 & 5 (n = 143)	Years 6 & 7 (n = 145)	Total (n = 288)
Deliberately Not Enjoy Smoking	Yes	36	14	25
	Maybe	36	41	38
	No	28	45	37
	Total	100	100	100
		Years 4 & 5 (n = 141)	Years 6 & 7 (n = 146)	Total (n = 287)
Deliberately Not Like The Taste Of Smoking	Yes	31	12	21
	Maybe	38	45	42
	No	31	43	37
	Total	100	100	100

### *Differences by Smoking Status*

Perceptions of avoidance strategies by smoking status were not statistically significant (not enjoy:  $\chi^2 = 2.069$ ,  $df = 2$ ,  $p > .05$ ; not like the taste:  $\chi^2 = .081$ ,  $df = 2$ ,  $p > .05$ )

### *Smoking Intentions and perceived efficacies of avoidance strategies*

The odds ratios relating smoking intentions to avoidance strategies are presented in Table 5.36 for never smokers. Overall, believing that addiction can be deliberately avoided generally increased the odds for intentions to try smoking and to take up regular smoking but the results were not statistically significant.

### **Hypothesis H3 – Avoiding Addiction**

It was hypothesised (H3) that for never smokers, intentions to try smoking would be positively related to beliefs that addiction can be avoided. Overall, the results are consistent with this hypothesis but are not statistically significant.

Table 5.36

Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Avoid Addiction by Deliberately Not Enjoy Smoking	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
No	1.00	1.00			1.00	1.00		
Yes/Maybe	1.60	1.47	0.35	0.66 – 3.28	1.42	1.21	0.67	0.50 – 2.92

Avoid Addiction by Deliberately Not Like The Taste Of Smoking	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
No	1.00	1.00			1.00	1.00		
Yes/Maybe	1.75	1.63	0.23	0.73 – 3.64	1.95	1.75	0.22	0.72 – 4.30

\* p < .05

### 5.3.3.3 Never smokers' addiction concerns and reasons for not smoking

This section explores reasons for never smokers' abstinence from smoking. Never smokers were asked to state two main reasons (first main reason, second main reason) why they did not currently smoke. The following list of nine reasons was provided:

- I think cigarettes are too expensive
- I'm too young to buy cigarettes now
- I think smoking is bad for my health
- I don't want to become addicted
- My boyfriend/girlfriend doesn't want me to smoke
- My brothers/sisters don't want me to smoke
- My friends don't want me to smoke
- My parents don't want me to smoke
- My teacher/principal doesn't want me to smoke

Figure 5.27 shows that almost three quarters of respondents selected health (73%) as the first main reason for not smoking with another 20% selecting it as their second main reason. The next most frequently selected reason was not wanting to become addicted – 11% of respondents nominated this as their first, and 44% as their second main reason. No other reason received more than 21% of first and second nominations. Being too young to purchase cigarettes was nominated by 10% of respondents as their first, and by 11% of respondents as their second main reason for not smoking now. Cost of cigarettes was selected by about 10% of respondents as their first or second nominations.

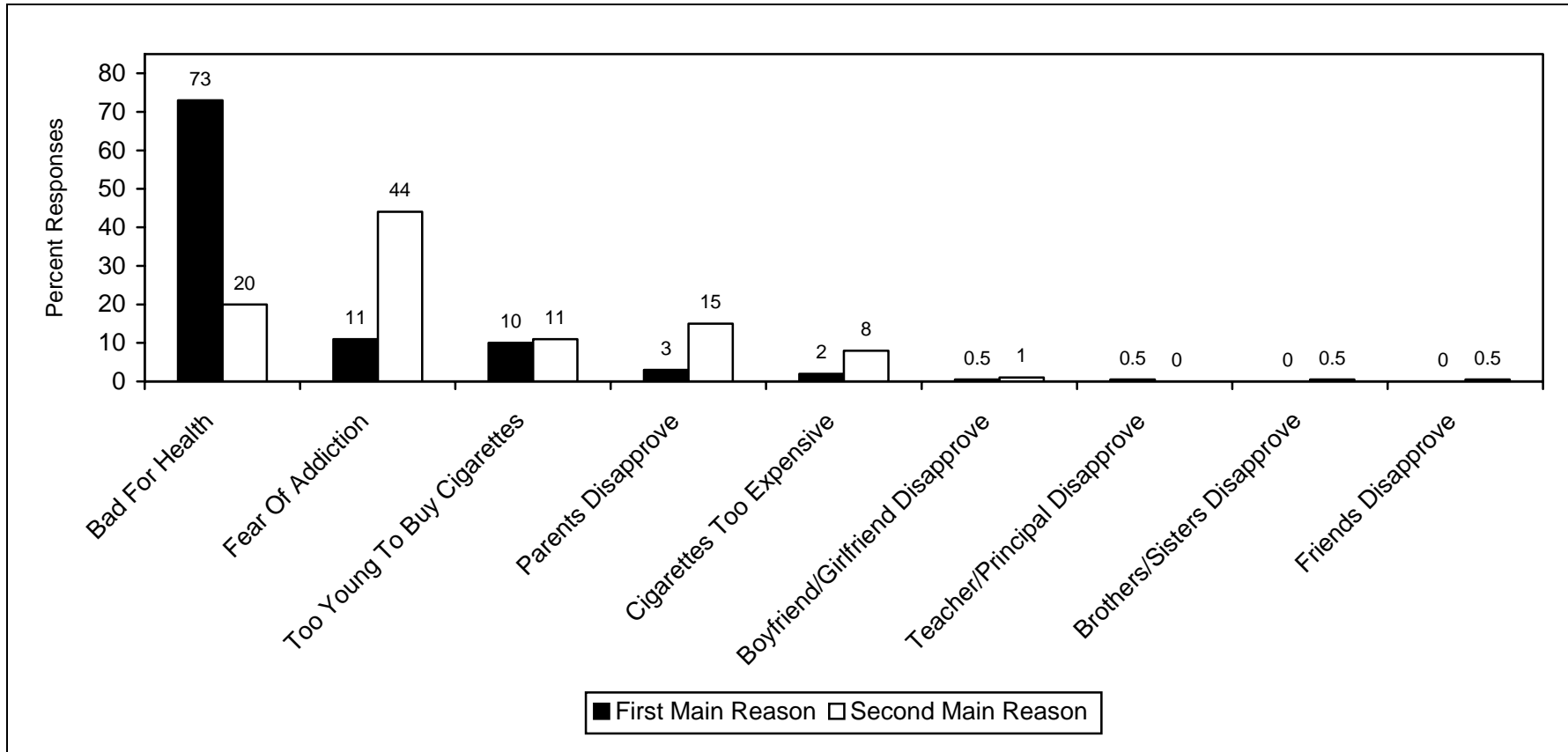


Figure 5.27 – Primary School Never Smokers: Reasons Why They Don't Smoke

*Differences by Gender and School Year*

Responses for the disapproval of significant others (i.e., parents, friends, teachers, etc) were combined into a common ‘disapproval of significant others’ category.

No statistically significant differences were found in relation to the selection of main reasons for not smoking and gender (first main reason:  $\chi^2 = 3.232$ ,  $df = 4$ ,  $p > .05$ ; second main reason:  $\chi^2 = 11.421$ ,  $df = 4$ ,  $p > .05$ ).

Table 5.37 shows the above results by school year. For first main reasons, more Years Six and Seven than Years Four and Five students selected health (75% vs. 67% respectively) or addiction concerns (16% vs. 8%), while proportionately more Years Four and Five than Years Six and Seven students selected age (too young to purchase cigarettes) and disapproval of others as first main reasons (first main reason:  $\chi^2 = 16.769$ ,  $df = 4$ ,  $p < .01$ ; second main reason:  $\chi^2 = 4.773$ ,  $df = 4$ ,  $p > .05$ ).

*Table 5.37  
Reasons For Not Smoking x School Year*

1st Main Reason For Not Smoking Now	School Year		
	Years 4 & 5 (n = 142)	Years 6 & 7 (n = 144)	Total (n = 286)
I Think Cigarettes Are Too Expensive	4	1	2
I'm Too Young To Buy Cigarettes Now	15	5	10
I Think Smoking Is Bad For My Health	67	75	71
I Don't Want To Become Addicted	8	16	12
Disapproval of Significant Others	6	3	5
Total	100	100	100

2nd Main Reason For Not Smoking Now	Years 4 & 5 (n = 139)	Years 6 & 7 (n = 141)	Total (n = 280)
I Think Cigarettes Are Too Expensive	6	11	9
I'm Too Young To Buy Cigarettes Now	12	11	11
I Think Smoking Is Bad For My Health	18	23	20
I Don't Want To Become Addicted	44	40	42
Disapproval of Significant Others	20	15	18
Total	100	100	100



*Smoking intentions and reasons for not smoking now*

Table 5.38 shows never smokers' intentions to try smoking by their nominated reasons for not smoking (first main reason:  $\chi^2 = 49.695$ ,  $df = 4$ ,  $p < .01$ ; second main reason:  $\chi^2 = 9.996$ ,  $df = 4$ ,  $p < .05$ ). Overall, intentions not to try smoking were associated with higher concerns about health and addiction: 77% selected health as their first, and 20% selected health as their second main reasons for not smoking; while 12% selected addiction as their first, and 45% selected addiction as their second, main reasons. On the other hand, intentions to try smoking were associated with less concerns about health and addiction: health – 36% first and 27% second main reason; addiction – 11% first and 24% second main reason.

Table 5.39 shows never smokers' intentions to take up regular smoking by their nominated reasons for not smoking (first main reason:  $\chi^2 = 19.968$ ,  $df = 4$ ,  $p < .01$ ; second main reason:  $\chi^2 = 10.504$ ,  $df = 4$ ,  $p < .05$ ). As for the above finding, intentions not to take up regular smoking were associated with higher concerns about health and addiction: 75% selected health as their first and 23% selected this as their second main reason while 12% and 43% selected addiction respectively as one of their two main reasons. On the other hand, intentions to try smoking were associated with less concerns about health and addiction: 47% and 7% selected health as their first or second main reason respectively, while 9% and 39% selected addiction as their two main reasons respectively.

Table 5.40 presents odds ratios for the nominated reason 'I don't want to be addicted' contrasted against a reference category consisting of all the other reasons combined ('all other reasons'). The goal of these contrasts was to show the effect of addiction concerns (compared to other stated reasons) on never smokers' intentions to smoke.

Overall, logistic regression models show that the odds of intentions to try and intentions to take up regular smoking were mostly lower for never smokers who nominated 'don't want to become addicted' (vs. nomination of all other reasons) but results were not statistically significant.

#### **Hypothesis H4 – Addiction Concerns**

It was hypothesised (H4) that for never smokers, smoking intentions would be negatively associated with concerns about becoming addicted. Although odds ratios were not statistically significant, overall results are consistent with the hypothesis: respondents who nominated ‘I don’t want to become addicted’ as a main reason for not smoking now were less likely to have intentions to smoke in the future.

Table 5.38

Reasons For Not Smoking x Intentions To Try Smoking

Reasons For Not Smoking Now	Intentions To <u>Try</u> Smoking					
	Yes/Maybe (n = 45)			No (n = 238)		
	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases
I Think Cigarettes Are Too Expensive	7	4	11	2	9	11
I'm Too Young To Buy Cigarettes Now	31	18	49	6	10	16
I Think Smoking Is Bad For My Health	36	27	63	77	20	97
I Don't Want To Become Addicted	11	24	35	12	45	57
Disapproval of Significant Others	15	27	42	3	16	19
Total	100	100	200	100	100	200

Table 5.39

Reasons For Not Smoking x Intentions To Take Up Regular Smoking

Reasons For Not Smoking Now	Intentions To <u>Take Up</u> Regular Smoking					
				%		
	Yes/Maybe (n = 31)			No (n = 243)		
	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases
I Think Cigarettes Are Too Expensive	6	3	9	2	8	10
I'm Too Young To Buy Cigarettes Now	24	19	43	8	10	18
I Think Smoking Is Bad For My Health	47	7	54	75	23	98
I Don't Want To Become Addicted	9	39	48	12	43	55
Disapproval of Significant Others	14	32	46	3	16	19
Total	100	100	100	100	100	100

Table 5.40

Reasons For Not Smoking Now Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

1 <sup>st</sup> Main Reason For Not Smoking Now	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	0.88	0.90	0.86	0.28 – 2.91	0.91	1.09	0.90	0.30 – 3.87

2 <sup>nd</sup> Main Reason For Not Smoking Now	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	0.53	0.57	0.15	0.26 – 1.22	0.96	0.92	0.85	0.40 – 2.11

\* p < .05; \*\* p < .01

### **5.3.3.4 Addictive characteristics of cigarettes and intentions to smoke**

This section presents the odds ratios for smoking intentions relating to perceptions of the addictive characteristics of cigarettes reported in section 5.3.1. Odds ratios (shown in Table 5.41) were calculated for intentions to try smoking and intentions to take up regular smoking based on perceptions relating to: (1) the addictive strength of cigarettes; (2) cigarettes as a top-ranked item for hardest to stop if addicted; (3) cigarettes as a top-ranked item for easiest to become addicted to; and (4) cigarettes as a top-ranked item for danger of addiction. The main focus of analyses is on never smokers' intentions to try smoking.

In section 5.3.1, perceptions of the addictive strength of cigarettes were investigated by asking all respondents to nominate whether the strength of this addiction was: very strong, strong, weak or very weak. For the present computation of odds ratios, 'very strong' responses were contrasted against the combined reference category of 'strong + weak + very weak' responses. Three sets of results in Table 5.41 pertain to never smokers who ranked cigarettes as the top item in terms of being: the hardest to stop if addicted, the easiest item to become addicted to, and the most dangerous item if addicted. Odds ratios were computed by contrasting cigarettes versus all other items<sup>1</sup> ranked top (for each of hardest, easiest and most dangerous respectively).

For intentions to try smoking, Table 5.41 shows that never smokers who rated cigarettes top as hardest to stop were significantly less likely to intend smoking. Those who rated the addictive strength of cigarettes as 'very strong' and those who nominated cigarettes as the top item in terms of easiest to be addicted to or most dangerous addiction were also less likely to have intentions to try smoking although results were not significant.

---

<sup>1</sup> i.e., cigarettes vs. alcohol, drugs, gambling, chocolates, fast foods, soft drinks, watching TV, playing video games and playing sports combined.

For intentions to take up regular smoking, all regression models (except those for addictive strength of cigarettes) showed decreases in smoking intentions but results were not significant.

These results suggest that perceptions relating to cigarettes as hardest to stop are a better predictor of smoking intentions than strength, ease or danger of addiction.

Table 5.41

Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Variable	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
Addictive Strength of Cigarettes								
- Very Weak + Weak + Strong	1.00	1.00			1.00	1.00		
- Very Strong	0.88	0.91	0.89	0.39 – 2.15	2.56	2.76	0.12	0.78 – 9.79
Top-Ranked for Hardest to Stop								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.44*	0.44 <sup>+</sup>	0.51	0.20 – 1.00	0.54	0.50	0.11	0.21 – 1.17
Top-Ranked for Easy to be Addicted								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.93	1.00	0.99	0.46 – 2.18	0.80	0.85	0.72	0.36 – 2.03
Top-Ranked for Most Dangerous Addiction								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.83	0.78	0.58	0.32 – 1.88	0.98	0.74	0.52	0.29 – 1.87

\* p < .05; \*\* p < .01; <sup>+</sup> p < .10



## 5.4 Summary

This chapter provided analyses of primary school respondents' perceptions of both addiction in general and smoking addiction in particular.

For perceptions of addiction in general, this was explored through comparisons of alcohol, drugs, chocolates, fast foods, gambling, sports, soft drinks, television and video games (ten items) on the basis of addictiveness (yes/no), strength of addiction (very strong to very weak) and rankings for most difficult to stop when addicted, easiest to be addicted to and most dangerous to be addicted to.

The role of addiction in adult and youth smoking, and beliefs about why and when smoking addiction happens were explored. Also investigated were respondents' perceptions of what it means to be addicted to smoking and perceptions of the consequences of being addicted.

The relationship between intentions to smoke and specific perceptions of smoking addiction was investigated. In particular, intentions to try smoking were examined in relation to perceived opportunities of trying smoking without becoming addicted and the use of avoidance strategies to circumvent becoming addicted when trying smoking. Also investigated was the relationship between intentions to smoke and perceptions of addictive characteristics of cigarettes.

The correspondence of addiction concerns with smoking intentions was examined in relation to never smokers' intentions to try smoking and intentions to take up smoking, and current smokers' intentions to continue smoking and intentions to smoke when grown up.

In the above explorations, four of the six stated hypotheses of the thesis were tested. Two hypotheses related to respondents who currently smoked cigarettes (H5 and H6) and were omitted because of the low number of current smokers in this sample of primary school students.

Of the four that were explored, the first tested the relationship between intentions to try smoking and perceptions of opportunities to smoke without becoming addicted. Results supported the stated hypothesis and showed that the odds for never smokers' intentions to smoke increased with perceived beliefs that trying smoking was possible without becoming addicted (and decreased with perceived beliefs that trying smoking was not possible without becoming addicted).

The second hypothesis explored the relative salience of control/losing control for never smokers and current smokers. Findings supported the hypothesis that losing control from being addicted to smoking was more salient for never smokers than for current smokers.

The third hypothesis explored beliefs in addiction avoidance strategies and their relationship with intentions to try smoking. Two strategies were tested: (1) deliberately not enjoying smoking and (2) deliberately not liking the taste of smoking. Although results were not statistically significant, findings were consistent with the hypothesis: beliefs that addiction could be deliberately avoided generally corresponded with increased odds of intentions to try smoking.

The last hypothesis explored the relationship between not currently smoking because of addiction concern and never smokers' (1) intentions to try smoking and (2) intentions to take up smoking. Although results were not statistically significant, results were generally in the hypothesised direction: the odds of never smokers' intending to smoke decreased with concern over becoming addicted.

Finally, intentions to smoke were also investigated in relation to perceptions of the addictive characteristics of cigarettes. Results showed that the odds of not intending to smoke decreased significantly with perceptions that cigarettes were ranked top as hardest to stop if addicted.

The next chapter presents analyses and results for secondary school respondents. Discussions dealing with the current findings and those from the next chapter will be presented in chapter seven.

## **Chapter SIX: RESULTS OF MAIN STUDY – SECONDARY SCHOOL STUDENTS**

---

### **6.1 Introduction**

This chapter continues the reporting of the main study results. Analyses and findings presented here relate to data collected from secondary school students. The same survey instrument was used for data collection from both primary and secondary schools. Analyses and their reporting in this chapter replicate that used in chapter five to enable comparisons between primary and secondary school data. Where results differ, they are noted in this chapter.

The recruitment of respondents followed procedures previously described in chapter four (methodology). Briefly, secondary schools were randomly selected from the local White Pages telephone directory and those recruited were located within a 20-kilometre radius of the city centre in metropolitan Perth, Western Australia. The schools consisted of one government and two non-government institutions. Of these, two were co-ed or mixed sex and one was an all-girl school.

Active consent from school principals, teachers, parents and students was obtained prior to conducting the study. Students in Years Eight, Nine and Ten

were asked to participate and the survey questionnaire was completed in class during school hours.

## 6.2 Secondary school respondents

In total, 573 young people from secondary school in Years Eight to Ten inclusive were surveyed. Key characteristics of these respondents are presented in Table 6.1.

*Table 6.1  
Overview of Secondary School Respondents*

	Description	n	%
Sex	Boy	269	47
	Girl	298	52
	Missing	6	1
	Total	573	100
School Year	Year 8	138	24
	Year 9	251	44
	Year 10	181	32
	Missing	3	-
	Total	573	100
Age (years)	14	130	23
	15	275	48
	16	145	25
	17	10	2
	Missing	13	2
	Total	573	100
School Type	Government	262	46
	Non-government	311	54
	Total	573	100

### 6.2.1 Sample overview

The total sample included 138 (24%) students from Year Eight; 251 (44%) from Year Nine; and 181 (32%) from Year Ten. Three students did not provide information on school year. With respect to gender, 269 were boys (47%) and 298 were girls (52%). Six students (1%) did not provide this information.

The age of respondents ranged from 14 to 17 years inclusive. In total, there were 130 14 year olds (23%); 275 15 year olds (48%); 145 16 year olds (25%); and 10 students who were aged 17 (2%). Thirteen students (2%) did not provide age information. As was observed with primary school respondents, age and school year only corresponded approximately for secondary school. For the school years sampled, the age of secondary school students differed by 2 to 4 years for reasons previously discussed in relation to primary school students surveyed (chapter five). School year was used in all analyses reported below because students are assumed to be more developmentally similar in the same school year than at the same age but in different years.

With respect to school type, 262 respondents (46%) were from government schools while 311 (54%) were from non-government schools.

## 6.2.2 Weighting

*Table 6.2*

*Weighting Table*

School Type	Sex	School Year	Number of Cases (Actual)	Percent of Total (Actual)	Weighting Proportion	Weighting Applied	Number of Cases (Weighted)	
Government	Boy	Year 8	48	8.51	8.33	0.98	47	
		Year 9	66	11.70	8.33	0.71	47	
		Year 10	54	9.57	8.33	0.87	47	
		Total	168	29.78	25	-	141	
	Girl	Year 8	24	4.26	8.33	1.96	47	
		Year 9	30	5.32	8.33	1.57	47	
		Year 10	36	6.38	8.33	1.31	47	
		Total	90	15.96	25	-	141	
	Non-Government	Boy	Year 8	29	5.14	8.33	1.62	47
			Year 9	53	9.40	8.33	0.89	47
Year 10			17	3.01	8.33	2.76	47	
Total			99	17.55	25	-	141	
Girl		Year 8	37	6.56	8.33	1.27	47	
		Year 9	97	17.20	8.33	0.48	47	
		Year 10	73	12.94	8.33	0.64	47	
		Total	207	36.70	25	-	141	

To adjust and control for the possible effects of under- or over- sampling with respect to gender, school type and school year, a weighting was applied to these variables. As in the previous chapter, this was achieved by applying a statistical factor and adjusting the relative proportion of cases between categories. Table 6.2 shows the weightings used. The analyses below do not include the results for whom gender, school year or school type were missing (n = 9).

### 6.2.3 Smoking status

Table 6.3 shows the self-reported smoking status of secondary school respondents surveyed.

*Table 6.3*  
*Smoking Status of Secondary School Respondents*

Smoking status	Unweighted		Weighted	
	n	%	n	%
Never Smoker	289	50	289	51
Trier	170	30	169	30
Current Smoker	113	20	105	19
Missing	1	-	-	-
Total	573	100	564	100

The two-question OPCS (UK) method used for determining the smoking status of primary school students was likewise used for secondary school students. Unweighted totals were: 289 (50%) never smokers, 170 (30%) triers and 113 (20%) current smokers. With weightings applied, comparative totals were: 289 (51%) never smokers, 169 (30%) triers and 105 (19%) current smokers.

Table 6.4 shows the breakdown of smoking status by gender. At least half of all respondents reported that they had never smoked cigarettes (weighted: 53% boys and 50% girls) while about one third reported that they had tried (weighted: 33% boys and 27% girls). For those who were currently smoking, the percentage of girls significantly exceeded that for boys (weighted: 23% vs. 14% respectively) ( $\chi^2 = 7.629$ ,  $df = 2$ ,  $p < .05$ ).

*Table 6.4  
Smoking Status x Sex*

Sex	Smoking Status	Unweighted		Weighted	
		n	%	n	%
Boy	Never Smoker	133	49	150	53
	Trier	94	35	92	33
	Current Smoker	42	16	40	14
	Total	269	100	282	100
Girl	Never Smoker	154	52	140	50
	Trier	75	25	77	27
	Current Smoker	68	23	65	23
	Total	297	100	282	100

Table 6.5 shows smoking status by school year. Overall, 63% of Year Eight, 44% of Year Nine and 47% of Year Ten students had never smoked cigarettes (weighted) while about 30% of respondents in each school year had tried (weighted). Of those who currently smoked, 7% were in Year Eight, 24% in Year Nine and 25% were in Year Ten. From the table, the percentage of never smokers decreased as school year increased, while the percentage of current smokers increased as school year increased.

*Table 6.5  
Smoking Status x School Year*

School Type	Smoking Status	Unweighted		Weighted	
		n	%	n	%
Year 8	Never Smoker	88	64	119	63
	Trier	41	30	57	30
	Current Smoker	9	6	12	7
	Total	138	100	188	100
Year 9	Never Smoker	112	45	82	44
	Trier	81	32	60	32
	Current Smoker	58	23	45	24
	Total	251	100	187	100
Year 10	Never Smoker	88	48	88	47
	Trier	48	27	52	28
	Current Smoker	45	25	48	25
	Total	181	100	188	100

Table 6.6 shows smoking status by school type. About one third of government school students (39%) and about two thirds of non-government school students (63%) had never smoked cigarettes. Of those with smoking experience, 37% of government and 23% of non-government school students had tried smoking,



while 24% of government and 14% of non-government school students were current smokers.

*Table 6.6*

*Smoking Status x School Type*

School Type	Smoking Status	Unweighted		Weighted	
		n	%	n	%
Government	Never Smoker	104	40	111	39
	Trier	97	37	103	37
	Current Smoker	61	23	67	24
	Total	262	100	281	100
Non-Government	Never Smoker	185	59	178	63
	Trier	73	24	65	23
	Current Smoker	52	17	38	14
	Total	310	100	281	100

## 6.3 Addiction analyses

The following sections present an exploration of secondary school students' conceptualisation of addiction. The sections include a broad analysis of young people's concepts of addiction generally, as well as more specific examinations of smoking addiction. Following the format of the previous chapter, the analyses reported here are divided into three main sections:

- the first reports results pertaining to young people's conceptualisation of addiction in general;
- the second reports results pertaining to young people's conceptualisation of smoking addiction; and,
- the third reports the relationship between beliefs about smoking addiction and young people's smoking intentions.

As part of the overall exploration, comparisons by gender, school year, school type and smoking status were investigated. As for primary school data, percent figures throughout have been rounded to the nearest whole number.

All statistical techniques used in this chapter included chi-square test of independence, factor analysis, ANOVA, MANOVA and logistic regression. As for the previous reporting, weighted figures have been used throughout.

### **6.3.1 Conceptualisation of addiction in general**

This section reports analyses and results of secondary school students' conceptualisation of addiction in general. As for primary school respondents, all secondary school students compared the addictiveness of alcohol, drugs, chocolates, cigarettes, fast foods, gambling, playing sports, soft drinks, watching television and playing video games (total = 10 items). In addition, all secondary school students also selected and ranked the top three items in respect of: the difficulty of stopping a particular item when addicted; the relative ease of becoming addicted to a particular item; and, the relative danger of being addicted to a particular item.

#### **6.3.1.1 Perceptions of general addictiveness**

Figure 6.1 shows respondents' perceptions of item addictiveness. In response to whether each item was possibly addictive, respondents answered 'yes', 'no' or 'don't know'.

Except for playing sports and soft drinks, each of the items was perceived by the majority of secondary school students as possibly addictive. Over 90% of respondents thought that alcohol, cigarettes, drugs and gambling were each addictive. Over 70% of respondents thought that chocolates were likewise addictive, 50% to 66% thought that fast foods, watching TV and playing video games were addictive, while 44% thought that soft drinks were addictive. Playing sports was the only item which more respondents thought was not addictive than addictive (43% vs. 37% respectively).

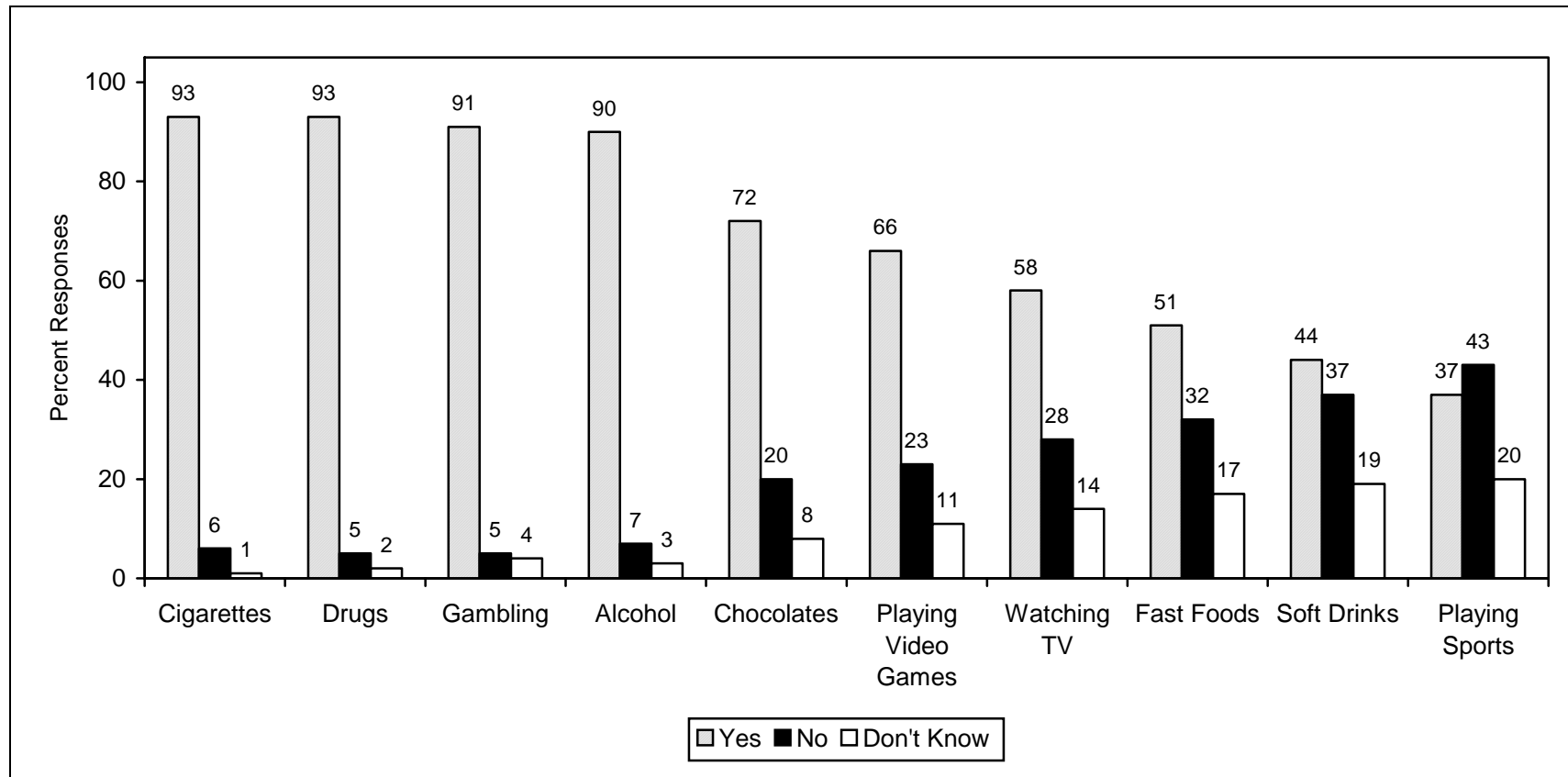


Figure 6.1 – Secondary School Students' Perceptions of General Addictiveness: 'Can You Get Addicted To...?'

The low percentage of respondents who answered ‘don’t know’ – less than 5% for alcohol, cigarettes, drugs and gambling, and less 20% for the remaining items – suggests that respondents had clear ideas about the addictiveness of each item. This applied particularly to items generally considered addictive by the vast majority of respondents.

For example, only 1%, 2% and 3% of respondents reported not knowing whether cigarettes, drugs and alcohol (respectively) could be addictive. Of the ten items, respondents were most uncertain about whether fast foods (17%), soft drinks (19%) and playing sports (20%) could be addictive.

The overall percentages and pattern of results were remarkably similar to results for primary school students.

#### *Factor Analysis*

Data reduction via principal component analysis was performed to explore whether the responses reflected an underlying pattern in respondents’ perceptions of addiction forming substances, foods and activities. Preliminary data screening analyses of the ten items produced an overall KMO statistic of 0.803 (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) and a Bartlett’s test significance of  $p < .001$  (Bartlett’s Test of Sphericity). Both statistics indicated an underlying relationship between the items (where  $KMO > .5$  and  $Bartlett\ p < .05$ ) and that factor analysis was an appropriate and reliable procedure to use to explore distinct relationships inherent in the data (Field, 2003). Data screening also produced a determinant correlation matrix of 0.02 (necessary value  $> 1.0E-05$  or .00001) suggesting that the items correlated fairly well and that extreme singularity and multicollinearity were not problems in the data (i.e., there was no need to remove any of the items due respectively to perfect or overly high correlations) (Field, 2003).

With respect to factor extraction, Varimax rotation extracted two factors or groupings of items with Eigenvalues  $> 1$ . The third factor had an Eigenvalue of

0.781 and, together with other lesser factors, was therefore disregarded. Factors and the items within are presented in Table 6.7.

The two factors retained may be interpreted as groupings of items along the following unifying dimensions:

- Factor F1: ‘Food, drinks and entertainment’ items
- Factor F2: ‘Sin’ items

*Table 6.7*  
*Principal Component Analysis of Items with Varimax Rotation of 2 Extracted Factors*

Items	Factors/Groupings		Communalities
	F1	F2	
Television	.801		.641
Video Games	.730		.561
Playing Sports	.725		.544
Fast Foods	.723		.523
Chocolates	.679		.461
Soft Drinks	.664		.477
<u>Cigarettes</u>		.890	.822
Drugs		.887	.809
Gambling		.797	.637
Alcohol		.728	.567
Eigenvalues	3.382	2.659	6.042
% Variance Explained	33.82	26.59	60.41

Factor F1 included activities (watching TV and playing sports and video games) and foods (fast foods, soft drinks and chocolates). Factor loadings for all items within this group were greater than 0.5 and hence, strongly significant (Hair, Anderson, Tatham, & Black, 1998). As discussed in the previous chapter, factor loadings provide a gauge of the significance of an item within a given factor with higher loadings providing a more reliable measure of the factor. Based on this measure, the overall result obtained was substantive and reliable.

For Factor F2, the high loadings of drugs, cigarettes, gambling and alcohol indicated that respondents perceived the general addictiveness of these items as highly correlated with one another and significantly distinct (Kachigan, 1986).

Table 6.8

Multivariate Test Statistics of Differences in Perceptions of Addictiveness For Sex, School Type, School Year and Sex

Effect	Test Statistic	Value	F	Hypothesis df	Error df	Significance
Intercept	Pillai's Trace	.916	564.470	10.000	517.000	.000
	Wilks' Lambda	.084	564.470	10.000	517.000	.000
	Hotelling's Trace	10.918	564.470	10.000	517.000	.000
	Roy's Largest Root	10.918	564.470	10.000	517.000	.000
Sex	Pillai's Trace	.045	2.436	10.000	517.000	.008*
	Wilks' Lambda	.955	2.436	10.000	517.000	.008*
	Hotelling's Trace	.047	2.436	10.000	517.000	.008*
	Roy's Largest Root	.047	2.436	10.000	517.000	.008*
School Type	Pillai's Trace	.021	1.109	10.000	517.000	.353
	Wilks' Lambda	.979	1.109	10.000	517.000	.353
	Hotelling's Trace	.021	1.109	10.000	517.000	.353
	Roy's Largest Root	.021	1.109	10.000	517.000	.353
School Year	Pillai's Trace	.060	1.603	20.000	1036.000	.045*
	Wilks' Lambda	.941	1.601	20.000	1034.000	.045*
	Hotelling's Trace	.062	1.600	20.000	1032.000	.046*
	Roy's Largest Root	.039	2.035	10.000	518.000	.028*
Smoking Status	Pillai's Trace	.041	1.082	20.000	1036.000	.363
	Wilks' Lambda	.959	1.081	20.000	1034.000	.364
	Hotelling's Trace	.042	1.080	20.000	1032.000	.365
	Roy's Largest Root	.027	1.417	10.000	518.000	.169

Design: Intercept + Sex + School Type + School Year + Smoking Status

\*Significant at .05 level

Generally, between-item correlations were stronger between drugs and cigarettes, and between gambling and alcohol suggesting that sub-groups within the factor could be identified.

While primary school students distinguished between activities, drugs and food/drinks, secondary school students did not. They simply contrasted ‘sin’ items with all other items.

*Differences in perceptions by Gender, School Year, School Type and Smoking Status*

Table 6.8 presents MANOVA test statistics for differences in perceptions of general addictiveness (DV – dependent variable) by gender, school type, school year and smoking status (IV – independent variable).

Test statistics showed that there were statistically significant differences for gender and school year, but not for school type or smoking status – i.e., perceptions of the addictiveness of items were related to respondent’s gender and school year, but not to schools attended or to smoking status. Separate ANOVAs were performed on each addiction item for gender and school year as follow-up analyses (Tables 6.9 and 6.10 respectively).

Item	Sum of Squares	df	Mean Square	F	Sig.
<u>Cigarettes</u>	<u>2.560</u>	<u>1</u>	<u>2.560</u>	<u>11.878</u>	<u>.001*</u>
Drugs	1.944	1	1.944	9.255	.002*
Alcohol	.616	1	.616	2.156	.143
Gambling	1.544	1	1.544	6.676	.010*
Chocolates	3.391	1	3.391	5.312	.022*
Fast Foods	.134	1	.134	.166	.684
Soft Drinks	.510	1	.510	.617	.432
Watching TV	.000	1	.000	.000	.999
Video Games	.670	1	.670	.965	.326
Playing Sports	.005	1	.005	.006	.937

\* Significant at .05 level

Table 6.9 shows that four of the ten items – cigarettes, drugs, gambling and chocolates – produced statistically significant ANOVA results, indicating that these items were perceived differently by boys and girls. Figures 6.2 to 6.5 show these differences.

In Figures 6.2 to 6.5, lower values on the y-axis approximate a ‘yes’ response (1 = item is addictive) while higher values approximate a ‘no’ (3 = item is not addictive). Tops and bottoms of the ‘I’ indicate the maximum and minimum range of responses respectively while the middle markings indicate the mean response.

Figures 6.2 to 6.5 show that mean scores were lower and the range of responses was smaller across the items for girls than boys, indicating that girls were more likely than boys to perceive that cigarettes, drugs, gambling and chocolates could be addictive.

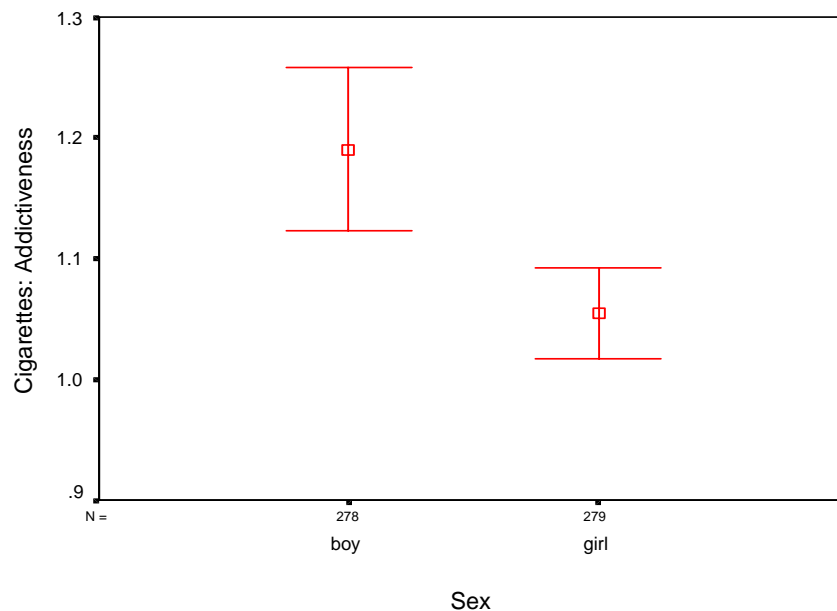


Figure 6.2 – Perceptions of Cigarettes Addictiveness x Sex



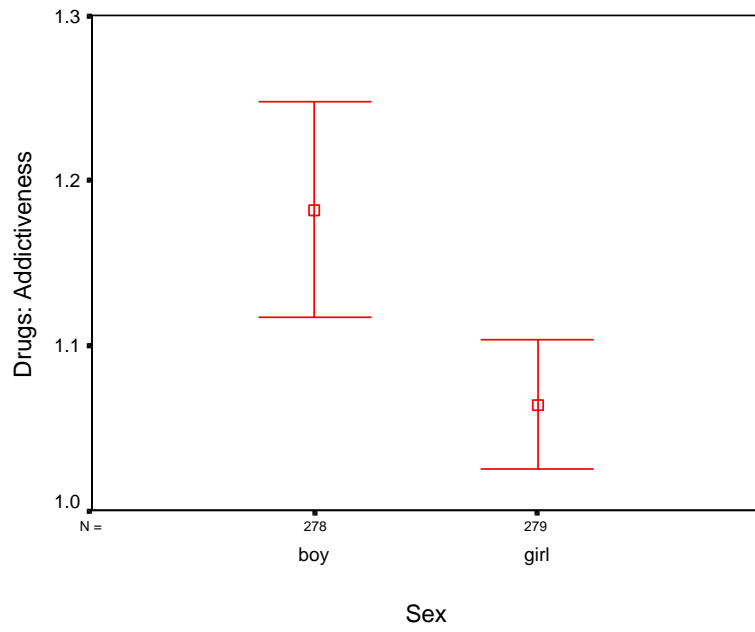


Figure 6.3 – Perceptions of Drugs Addictiveness x Sex

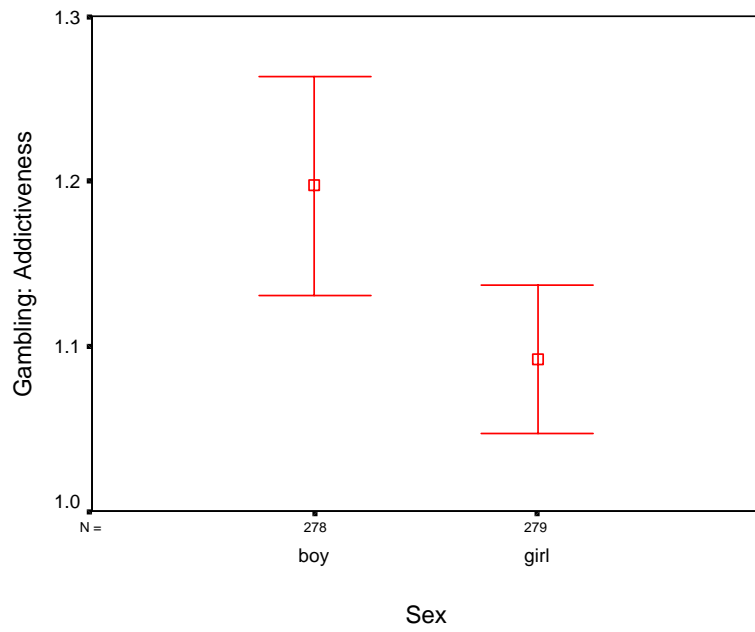


Figure 6.4 – Perceptions of Gambling Addictiveness x Sex

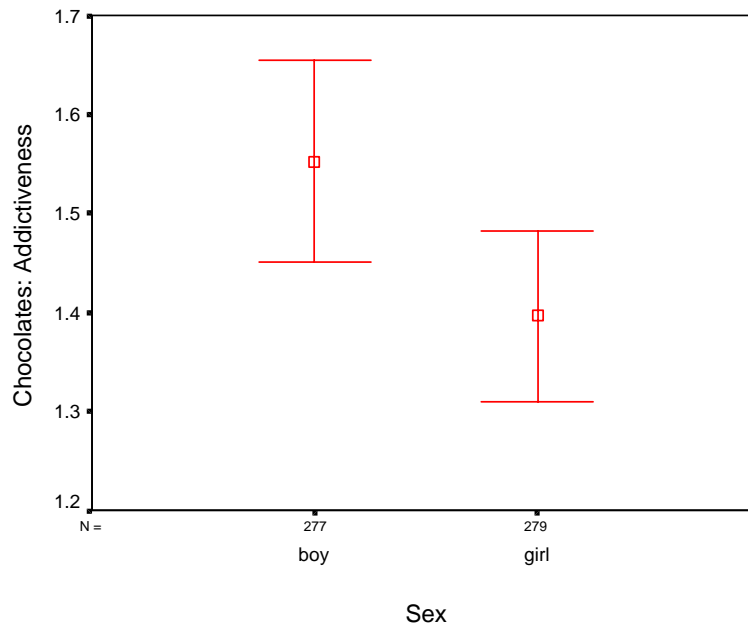


Figure 6.5 – Perceptions of Chocolates Addictiveness x Sex

Table 6.10 presents ANOVA results for school year. Only one of the ten items – watching TV – produced a statistically significant outcome, indicating that this item was perceived differently by respondents in Years Eight, Nine and Ten. Figure 6.6 shows this difference.

Table 6.10  
ANOVA For Perceptions Of Addictiveness x School Year

Item	Sum of Squares	Df	Mean Square	F	Sig.
<u>Cigarettes</u>	<u>.343</u>	<u>2</u>	<u>.172</u>	<u>.781</u>	<u>.459</u>
Drugs	.576	2	.288	1.354	.259
Alcohol	.073	2	.039	.129	.879
Gambling	.313	2	.157	.669	.512
Chocolates	2.773	2	1.386	2.164	.116
Fast Foods	1.039	2	.520	.645	.525
Soft Drinks	.306	2	.153	.185	.831
Watching TV	7.160	2	3.580	4.607	.010*
Video Games	2.428	2	1.214	1.752	.174
Playing Sports	1.971	2	.986	1.245	.289

\* Significant at .05 level

Comparing responses by school year, means and response ranges for Years Eight and Nine were similar and considerably lower than that for Year Ten, suggesting

that the younger students were more likely to believe that watching TV could be addictive than the oldest students.

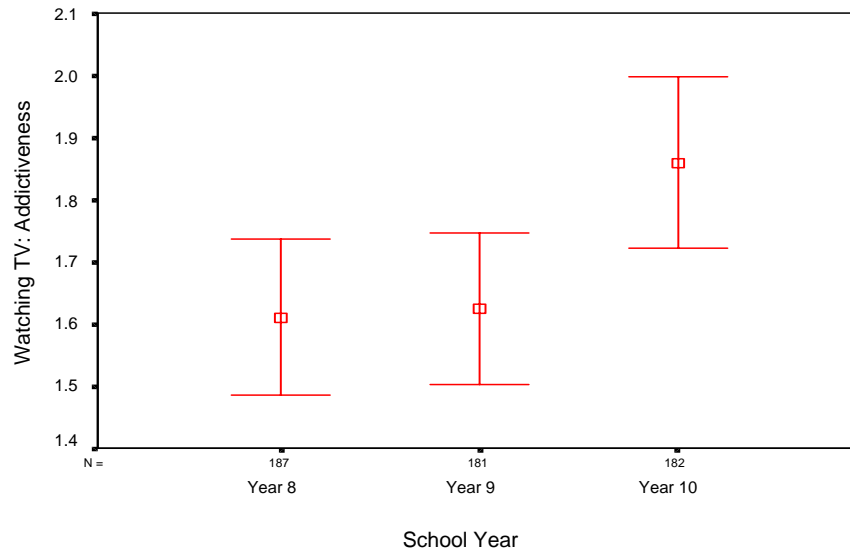


Figure 6.6 – Perceptions of TV Addictiveness x School Year

Overall though, the results in this section suggest that although some statistically significant findings were produced in relation to differences by gender and school year, many of the differences were not substantial. There was no overarching developmental effect on how respondents perceived the addictiveness of the items assessed.

With respect to cigarettes, the results show that girls were more likely than boys (97% vs. 90% respectively) to perceive cigarettes as possibly addictive (Appendix Table 6.1) but the difference is not substantial. For school year (Appendix Table 6.2), perceptions of whether cigarettes were addictive did not differ substantially – 93% of Year Eight, 91% of Year Nine and 95% of Year Ten students believed that cigarettes were capable of being addictive. Overall, uncertainty regarding the addictiveness of cigarettes (i.e., ‘don’t know’ responses) was extremely low regardless of gender (average less than 1%) (Appendix Table 6.1) or school year (average less than 2%) (Appendix Table 6.2).

### 6.3.1.2 Perceptions of addiction strength

Figure 6.7 shows the perceived addiction strength of the items for respondents who believed the items could be addictive. The items were rated on a four-point Likert scale that ranged from: ‘1: very weak’, ‘2: weak’, ‘3: strong’ to ‘4: very strong’. Mean scores and standard deviations are presented in Table 6.11.

The addictive strengths of drugs (mean = 3.82) and cigarettes (mean = 3.75) were rated as strongest of all the items – 88% and 82% of respondents respectively rated drugs and cigarettes as very strong addictions. Less than 3% rated each of these as weak or very weak.

Alcohol (mean = 3.52) and gambling (mean = 3.49) were each rated as very strong addictions by 59% and 57% of respondents respectively but for the remaining items, about half or more rated these as weak.

*Table 6.11  
Perceptions of Addictive Strength*

Item	Mean	Std. Deviation
Drugs	3.82	.51
<u>Cigarettes</u>	<u>3.75</u>	<u>.57</u>
Alcohol	3.52	.51
Gambling	3.49	.69
Video Games	2.67	.98
Watching TV	2.60	.97
Chocolates	2.53	.82
Fast Foods	2.50	.84
Playing Sports	2.40	1.02
Soft Drinks	2.36	.93

Ratings for addictive strength:  
1 = Very Weak, 2 = Weak, 3 = Strong, 4 = Very Strong

#### *Differences in perceptions by Gender, School Year, School Type and Smoking Status*

Associations between ratings of addictive strength and respondents’ characteristics were explored using multivariate analysis of variance. Table 6.12 presents MANOVA test statistics for gender, school type, school year and smoking status.

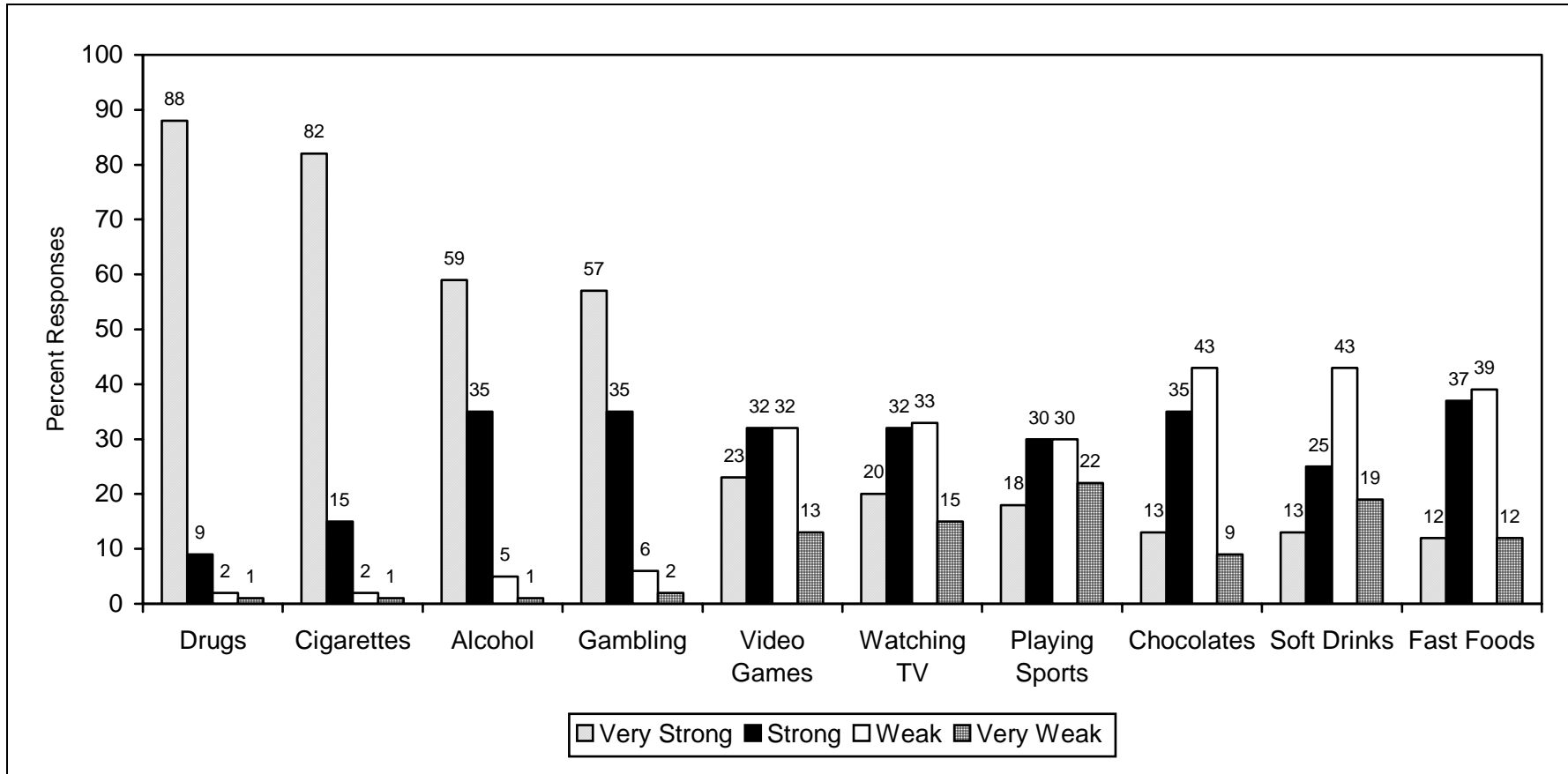


Figure 6.7 – Secondary School Students' Perceptions of Addictive Strength\*

\* (Only respondents who believed the items could be addictive)

Table 6.12

Multivariate Test Statistics of Differences in Perceptions of Addiction Strength For Sex, School Type, School Year and Smoking Status

Effect	Test Statistic	Value	F	Hypothesis df	Error df	Significance
Intercept	Pillai's Trace	.982	1004.759	10.000	186.000	.000
	Wilks' Lambda	.018	1004.759	10.000	186.000	.000
	Hotelling's Trace	54.019	1004.759	10.000	186.000	.000
	Roy's Largest Root	54.019	1004.759	10.000	186.000	.000
Sex	Pillai's Trace	.125	2.654	10.000	186.000	.005*
	Wilks' Lambda	.875	2.654	10.000	186.000	.005*
	Hotelling's Trace	.143	2.654	10.000	186.000	.005*
	Roy's Largest Root	.143	2.654	10.000	186.000	.005*
School Type	Pillai's Trace	.051	.994	10.000	186.000	.450
	Wilks' Lambda	.949	.994	10.000	186.000	.450
	Hotelling's Trace	.053	.994	10.000	186.000	.450
	Roy's Largest Root	.053	.994	10.000	186.000	.450
School Year	Pillai's Trace	.094	.926	20.000	374.000	.554
	Wilks' Lambda	.907	.927	20.000	372.000	.553
	Hotelling's Trace	.100	.928	20.000	370.000	.552
	Roy's Largest Root	.076	1.422	10.000	187.000	.173
Smoking Status	Pillai's Trace	.194	2.011	20.000	374.000	.006*
	Wilks' Lambda	.815	2.005	20.000	372.000	.007*
	Hotelling's Trace	.216	1.998	20.000	370.000	.007*
	Roy's Largest Root	.130	2.436	10.000	187.000	.009*

Design: Intercept x Sex x School Type x School Year x Smoking Status

\* Significant at .05 level

There were no significant effects for school type and school year with respect to perceptions of addiction strength. However, a statistically significant result was found for both gender and smoking status. Separate ANOVAs were performed on each item as follow-up analyses to explore the differences.

Table 6.13 shows ANOVAs for perceptions of addictive strength by gender. From the table, five of the ten items showed statistically significant differences for boys and girls. The items were cigarettes, drugs, alcohol, gambling and playing video games. Figures 6.8 to 6.11 present these differences.

In Figures 6.8 to 6.11, lower values on the y-axis reflect ratings of weaker addictive strength while higher values reflect ratings of stronger addictive strength. Tops and bottoms of the 'I' indicate the maximum and minimum range of responses respectively while the middle markings indicate the mean response.

*Table 6.13*  
*ANOVA For Perceptions of Addictive Strength x Sex*

Item	Sum of Squares	df	Mean Square	F	Sig.
<u>Cigarettes</u>	<u>7.586</u>	<u>1</u>	<u>7.586</u>	<u>24.536</u>	<u>.000*</u>
Drugs	4.848	1	4.848	18.924	.000*
Alcohol	2.785	1	2.785	6.515	.011*
Gambling	12.636	1	12.636	28.322	.000*
Chocolates	.030	1	.030	.053	.817
Fast Foods	.000	1	.000	.001	.980
Soft Drinks	1.194	1	1.194	1.381	.241
Watching TV	1.106	1	1.106	1.184	.277
Video Games	4.072	1	4.072	4.302	.039*
Playing Sports	2.327	1	2.327	2.246	.135

\* Significant at .05 level

For alcohol, drugs, cigarettes and gambling (Figures 6.8 to 6.11), boys consistently had lower means (less than 3.65) and lower response ranges (3.2 to 3.8) compared to girls (means: greater than 3.6; response range: 3.5 to 3.95), suggesting that girls were generally more likely to rate these items as more strongly addictive than did boys. However, the reverse was observed for video games (Figure 6.12) which boys (mean = 2.75; range = 2.65 to 2.9) were more likely to rate as strongly addictive than did girls (mean = 2.55; range = 2.45 to

2.7). Overall, girls were more likely than boys to consider cigarettes, drugs and gambling addictive, and the strength of addiction greater.

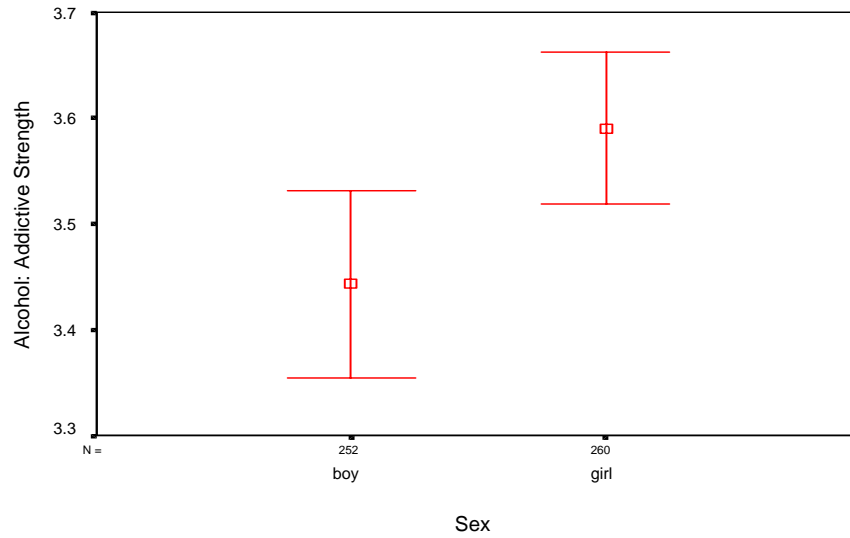


Figure 6.8 – Perceptions of Alcohol Addictive Strength x Sex

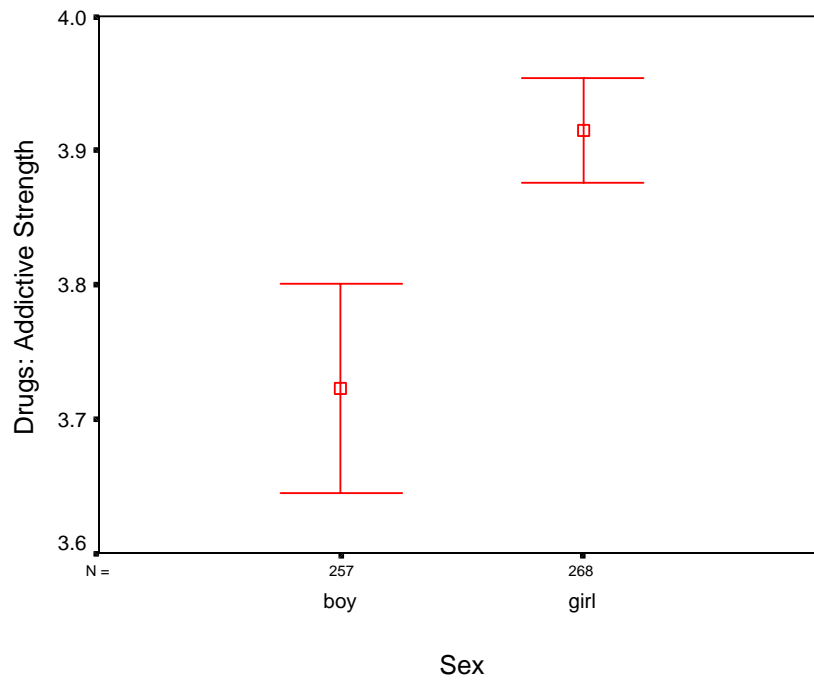


Figure 6.9 – Perceptions of Drugs Addictive Strength x Sex



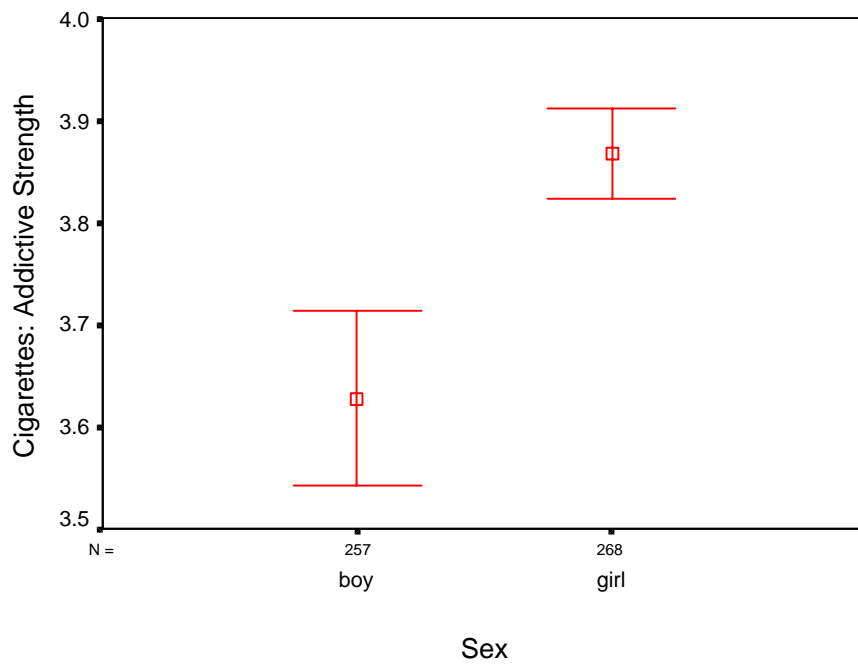


Figure 6.10 – Perceptions of Cigarettes Addictive Strength x Sex

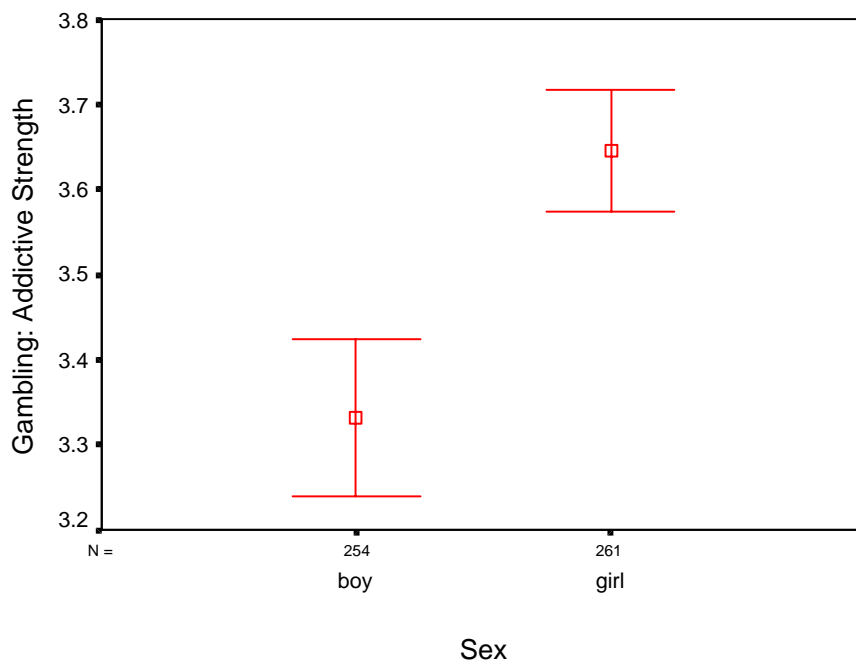


Figure 6.11 – Perceptions of Gambling Addictive Strength x Sex

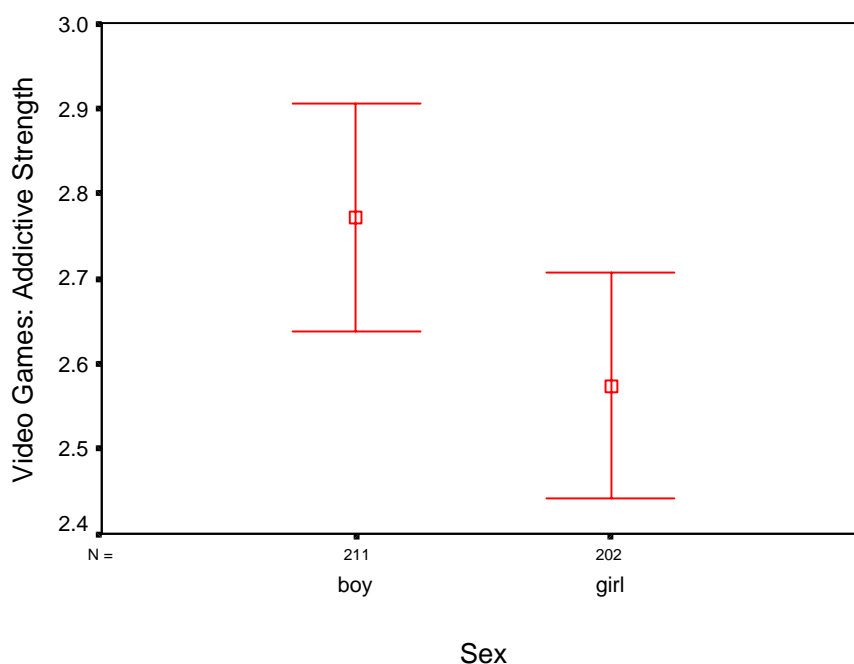


Figure 6.12 – Perceptions of Video Games Addictive Strength x Sex

Table 6.14 shows ANOVAs for perceptions of addictive strength by smoking status. Of the ten items, alcohol and chocolates showed statistically significant differences. These differences are shown in Figures 6.13 and 6.14.

Table 6.14

ANOVA For Perceptions of Addictive Strength x Smoking Status

Item	Sum of Squares	df	Mean Square	F	Sig.
Cigarettes	.274	2	.137	.422	.656
Drugs	.680	2	.340	1.285	.278
Alcohol	3.675	2	1.828	4.286	.014*
Gambling	1.965	2	.982	2.100	.124
Chocolates	5.595	2	2.798	4.217	.015*
Fast Foods	3.051	2	1.525	2.173	.115
Soft Drinks	1.773	2	.886	1.024	.360
Watching TV	.195	2	.097	.104	.901
Video Games	2.464	2	1.232	1.293	.276
Playing Sports	4.968	2	2.484	2.411	.092

\* Significant at .05 level

Figure 6.13 shows that the mean rating and response range for current smokers (mean = 3.7; range = 3.6 to 3.8) were higher compared to that for never smokers

(mean = 3.5; range = 3.4 to 3.6) and triers (mean = 3.45; range = 3.35 to 3.6), indicating that smokers generally rated alcohol as more strongly addictive than did those who did not smoke. These results may be due to a higher percentage of females being current smokers.

Perceptions of chocolate addiction produced a statistically significant result. Figure 6.14 shows that of the three groups, current smokers (mean = 1.42; range = 1.29 to 1.59) generally rated the strength of chocolate addiction less strongly than did either never smokers (mean = 1.48; range = 1.39 to 1.58) or triers (mean = 1.48; range = 1.38 to 1.60). In addition, the variability of ratings for current smokers was much wider compared to either of the other groups. These results may be due again to a higher percentage of females being current smokers.

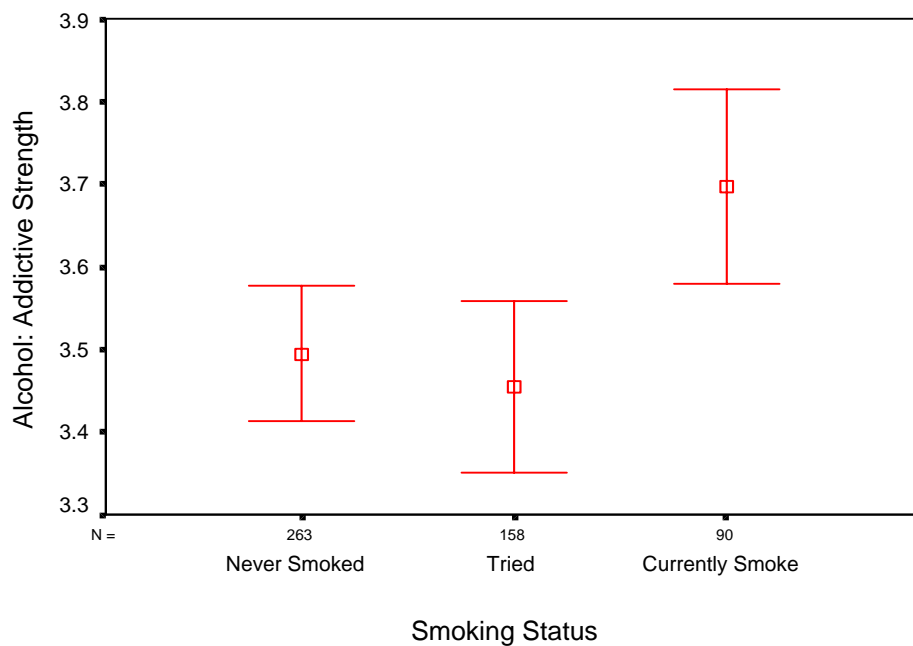


Figure 6.13 – Perceptions of Alcohol Addictive Strength x Smoking status

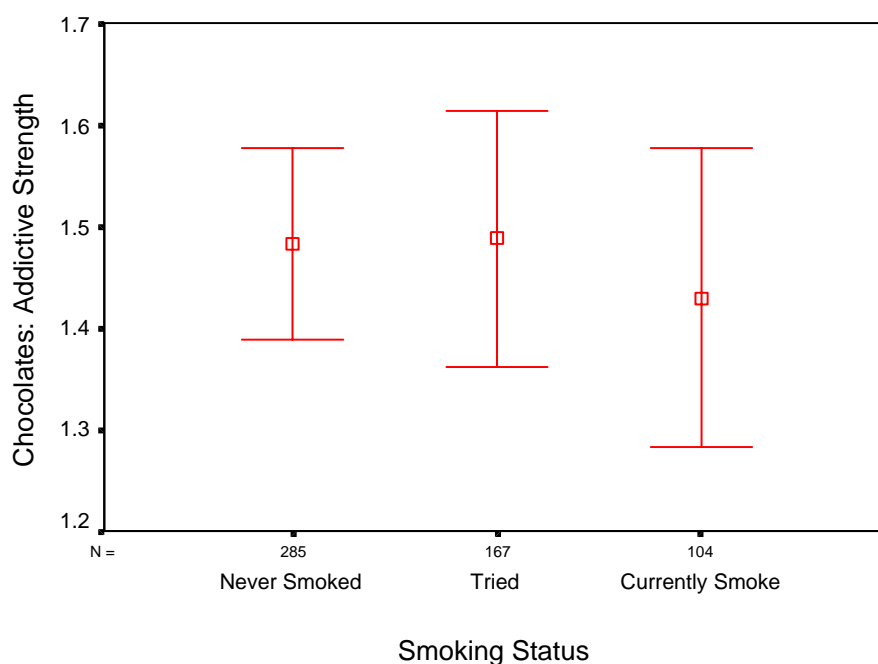


Figure 6.14 – Perceptions of Chocolates Addictive Strength x Smoking status

Overall, perceptions of the addictive strength of cigarettes did not differ significantly in relation to gender – 100% of girls in the current study rated the addictive strength of cigarettes as strong or very strong while 93% of boys rated cigarettes as strong or very strong, 5% rated it as weak and 2% rated it as very weak (Appendix Table 6.3). For school year (Appendix Table 6.4), there were no statistically significant differences in ratings of cigarette addiction across Year Eight, Year Nine and Year Ten students.

### 6.3.1.3 Perceptions of difficulty in stopping an addiction

Table 6.15 shows how respondents ranked the ten items on perceived difficulty in stopping or giving up the items when addicted. Like primary school students, all secondary school students were asked to select three items they thought were the most difficult to stop doing and then rank these by ‘very hardest’, ‘next hardest’ and ‘third hardest’ to stop.

A majority of respondents selected and ranked drugs (65%) as the hardest item to stop while about a quarter selected cigarettes (26%). Four percent selected alcohol while 1% selected each of gambling, chocolates, watching TV, playing video games and playing sports. None selected fast foods or soft drinks as their first choice.

Overall, drugs and cigarettes were the most frequently selected items – 93% and 87% of all respondents respectively ranked these in the top three items hardest to stop. Although alcohol was selected by less than 5% of respondents as their first choice, it was nevertheless ranked in the top three by 76% of respondents.

*Table 6.15  
Difficulty In Stopping – Items rated ‘Very Hardest’, ‘Next Hardest’ & ‘Third Hardest’ to stop*

Item	Ranking			Total Top Three %
	Very Hardest (n = 558) %	Next Hardest (n = 558) %	Third Hardest (n = 554) %	
Drugs	65	22	8	93
<u>Cigarettes</u>	<u>26</u>	<u>44</u>	<u>17</u>	<u>87</u>
Alcohol	4	24	48	76
Gambling	1	6	22	9
Chocolates	1	1	1	3
Watching TV	1	1	1	3
Video Games	1	1	1	3
Fast Foods	-	1	1	2
Soft Drinks	-	-	1	2
Playing Sports	1	-	-	1
Total	100	100	100	300

*Differences in perceptions by Gender, School Type, School Year and Smoking Status*

Overall, z-tests for the significance of difference between proportions showed that there were no statistically significant gender differences in the rankings of items.

With respect to school year, z-tests for the significance of difference between proportions showed that there were no significant differences in top rankings or top three rankings by school year for item ranks.

Similarly for school type, z-tests for the significance of difference between proportions showed that there were no statistically significant differences in the ranking of items.

*Table 6.16  
Selected Item Rankings For Difficulty in Stopping x Smoking Status*

Ranks	Item	Smoking Status			p-value
		Never Smoker (n = 285)	Trier (n = 169)	Current Smoker (n = 105)	
Top Ranked	Drugs	65	64	64	-
	<u>Cigarettes</u>	<u>26</u>	<u>26</u>	<u>25</u>	-
	Alcohol	6	2	3	-
Ranked Top 2	Drugs	88	85	83	-
	<u>Cigarettes</u>	<u>76</u>	<u>66</u>	<u>62</u>	p < .05*
	Alcohol	25	31	30	-
Ranked Top 3	Drugs	94	94	90	-
	<u>Cigarettes</u>	<u>90</u>	<u>86</u>	<u>82</u>	p < .05*
	Alcohol	74	78	76	-

\*Z-test for the significance of difference between proportions at .05 level.

Z-tests for the significance of difference between proportions showed that the differences between never smokers and current smokers were statistically significant (albeit not large). Table 6.16 shows that more never smokers than triers, and more triers than current smokers nominated cigarettes in the top two (76% never smokers vs. 66% triers vs. 62% current smokers) and top three (90% never smokers vs. 86% triers vs. 82% current smokers) for items difficult to stop when addicted.

### **6.3.1.4 Perceptions of addiction ease**

Table 6.17 shows rankings of how easy respondents believed it would be for someone to become addicted to each of the items. Respondents were asked to select and rank only the top three items.

Table 6.17 shows that 35% of respondents each nominated cigarettes and drugs as very easiest to become addicted to. A small number of respondents selected

alcohol (8%), gambling (8%), chocolates (6%) watching TV (3%), playing video games (2%), fast foods (2%) and playing sports (1%) as the easiest items while none selected soft drinks.

*Table 6.17  
Addiction Ease – Items rated ‘Very Easiest’, ‘Next Easiest’ & ‘Third Easiest’ to be addicted to*

Item	Ranking			Total Top Three %
	Very Easiest (n = 554) %	Next Easiest (n = 554) %	Third Easiest (n = 550) %	
<u>Cigarettes</u>	<u>35</u>	<u>29</u>	<u>16</u>	<u>80</u>
Drugs	35	26	14	75
Alcohol	8	21	36	64
Gambling	8	9	17	34
Chocolates	6	4	5	15
Watching TV	3	2	4	9
Video Games	2	3	4	9
Fast Foods	2	3	2	7
Soft Drinks	-	2	2	4
Playing Sports	1	1	1	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>300</b>

Overall, cigarettes were selected by 80% and drugs by 75% of respondents in the top three. Alcohol was selected by 64% of respondents in the top three while gambling was selected in the top three by 34% of respondents. Except for chocolates (15%), the remaining items were ranked by less than 10% of respondents in each category.

#### *Differences in perceptions by Gender, School Year, School Type and Smoking Status*

For gender, z-tests for the significance of difference between proportions for the top three ranked items (drugs, cigarettes and alcohol) found no statistically significant rankings of items easiest to become addicted to.

Table 6.18 shows rankings of the same items by school year. Z-tests for the significance of difference between proportions showed significant decreases in the selection of cigarettes as top choice from Year Eight to Years Nine and Ten, alcohol showed a significant decrease in top three selection from Years Eight and

Nine to Year Ten and a significant decline in top two and top three selection by year.

Table 6.18

Selected Item Rankings For Ease Of Addiction x School Year

Ranks	Item	School Year			p-value
		%			
		Year 8 (n = 186)	Year 9 (n = 188)	Year 10 (n = 180)	
Top Ranked	Drugs	31	36	37	-
	<u>Cigarettes</u>	<u>44</u>	<u>31</u>	<u>31</u>	p < .05*
	Alcohol	6	10	7	-
Ranked Top 2	Drugs	59	59	64	-
	<u>Cigarettes</u>	<u>71</u>	<u>65</u>	<u>56</u>	p < .05*
	Alcohol	26	35	23	p < .05*
Ranked Top 3	Drugs	73	77	75	-
	<u>Cigarettes</u>	<u>82</u>	<u>83</u>	<u>75</u>	p < .05*
	Alcohol	68	69	55	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

Table 6.19

Selected Item Rankings For Ease Of Addiction x School Type

Ranks	Item	School Type		p-value
		%		
		Government (n = 281)	Non-Government (n = 274)	
Top Ranked	Drugs	34	35	-
	<u>Cigarettes</u>	<u>41</u>	<u>30</u>	p < .05*
	Alcohol	7	9	-
Ranked Top 2	Drugs	66	56	p < .05*
	<u>Cigarettes</u>	<u>68</u>	<u>60</u>	p < .05*
	Alcohol	27	30	-
Ranked Top 3	Drugs	80	69	p < .05*
	<u>Cigarettes</u>	<u>84</u>	<u>76</u>	p < .05*
	Alcohol	69	59	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

Z-tests for the significance of difference between proportions showed that the majority of differences in rankings by school type were statistically significant (Table 6.19), with students in government schools more likely to choose drugs, cigarettes and alcohol in the top rankings than students in non-government



schools. Reasons for this are unknown but may be related to curricula components.

With respect to smoking status, z-tests for the significance of difference between proportions showed no meaningful differences for rankings of drugs, alcohol or cigarettes.

### 6.3.1.5 Perceptions of addiction danger

Table 6.20 shows how respondents ranked the top three items considered ‘most dangerous’, ‘next most dangerous’ and ‘third most dangerous’ to be addicted to.

*Table 6.20  
Addiction Danger – Items rated ‘Most Dangerous’, ‘Next Most Dangerous’ & ‘Third Most Dangerous’ to be addicted to*

Item	Ranking			Total Top Three %
	Most Dangerous (n = 562) %	Next Most Dangerous (n = 557) %	Third Most Dangerous (n = 558) %	
Drugs	86	10	2	98
Alcohol	4	40	47	90
<u>Cigarettes</u>	<u>8</u>	<u>45</u>	<u>35</u>	<u>86</u>
Gambling	-	4	11	15
Fast Foods	-	-	2	3
Chocolates	1	1	1	2
Watching TV	1	-	1	2
Video Games	-	-	1	1
Soft Drinks	-	-	-	1
Playing Sports	-	-	-	-
Total	100	100	100	298

Table 6.20 shows that drugs were ranked as the most dangerous with 86% of respondents selecting this item for their first choice and 98% selecting this item in the top three. Cigarettes were nominated by 8% and alcohol by 4% of respondents as most dangerous. However, both items were nominated by 90% and 86% of respondents respectively in the top three of most dangerous items. Except for gambling (15%), the remaining items were each selected by less than 3% of respondents as a top three item for addiction danger. Playing sports was not selected by any respondent as dangerous.

Compared to primary school results, these findings were remarkably similar in respect of total top three rankings. However, for items ranked top, substantially more secondary than primary school students nominated drugs (86% vs. 70% respectively) while substantially more primary than secondary school students nominated cigarettes (23% vs. 8% respectively).

*Differences in perceptions by Gender, School Year, School Type and Smoking Status*

Table 6.21 shows that there were no significant gender differences in rankings for the top one and top two of most dangerous items. However, for items ranked top three, greater proportion of girls than boys nominated cigarettes and alcohol. Z-tests for the significance of difference between proportions showed that these differences were statistically significant, albeit not large.

*Table 6.21  
Selected Item Rankings For Addiction Danger x Sex*

Ranks	Item	Sex %		p-value
		Boy (n = 282)	Girl (n = 281)	
Top Ranked	Drugs	86	87	-
	<u>Cigarettes</u>	<u>7</u>	<u>8</u>	-
	Alcohol	3	5	-
Ranked Top 2	Drugs	94	97	-
	<u>Cigarettes</u>	<u>52</u>	<u>51</u>	-
	Alcohol	40	46	-
Ranked Top 3	Drugs	97	99	-
	<u>Cigarettes</u>	<u>83</u>	<u>89</u>	p < .05*
	Alcohol	85	94	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

For school year, z-tests for the significance of difference between proportions showed that some differences in item rankings were statistically significant. Table 6.22 shows that these differences can be accounted for by significant decreases in the selection of cigarettes after Year Nine and, by relative changes in the nomination of alcohol in the top two and top three of dangerous items particularly by Year Eight and Year Ten students, respectively.

Table 6.22

Selected Item Rankings For Addiction Danger x School Year

Ranks	Item	School Year			p-value
		%			
		Year 8 (n = 188)	Year 9 (n = 188)	Year 10 (n = 187)	
Top Ranked	Drugs	88	87	83	-
	<u>Cigarettes</u>	<u>9</u>	<u>7</u>	<u>6</u>	-
	Alcohol	1	5	5	-
Ranked Top 2	Drugs	98	97	93	-
	<u>Cigarettes</u>	<u>62</u>	<u>53</u>	<u>40</u>	p < .05*
	Alcohol	37	45	48	p < .05*
Ranked Top 3	Drugs	99	99	96	-
	<u>Cigarettes</u>	<u>89</u>	<u>93</u>	<u>76</u>	p < .05*
	Alcohol	95	91	83	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

Table 6.23 shows that greater proportions of government than non-government school students nominated cigarettes in the top two and top three, and alcohol in the top three of items most dangerous to be addicted to.

Table 6.23

Selected Item Rankings For Addiction Danger x School Type

Ranks	Item	School Type		p-value
		%		
		Government (n = 282)	Non-Government (n = 282)	
Top Ranked	Drugs	87	85	-
	<u>Cigarettes</u>	<u>7</u>	<u>8</u>	-
	Alcohol	5	2	-
Ranked Top 2	Drugs	97	94	-
	<u>Cigarettes</u>	<u>57</u>	<u>46</u>	p < .05*
	Alcohol	42	45	-
Ranked Top 3	Drugs	100	96	-
	<u>Cigarettes</u>	<u>91</u>	<u>81</u>	p < .05*
	Alcohol	94	85	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

Table 6.24 shows item rankings by smoking status. Z-tests for the significance of difference between proportions showed that most of the differences in item rankings were statistically significant. Much of these differences can generally be accounted for by greater proportions of never smokers and triers nominating drugs

or cigarettes in the top one, top two and top three; and alcohol in the top three of most dangerous items.

Table 6.24

*Selected Item Rankings For Addiction Danger x Smoking Status*

Ranks	Item	Smoking Status			p-value
		Never Smoker (n = 290)	Trier (n = 168)	Current Smoker (n = 106)	
Top Ranked	Drugs	90	86	76	p < .05*
	<u>Cigarettes</u>	<u>5</u>	<u>12</u>	<u>7</u>	p < .05*
	Alcohol	3	2	9	p < .05*
Ranked Top 2	Drugs	96	99	91	p < .05*
	<u>Cigarettes</u>	<u>54</u>	<u>53</u>	<u>44</u>	p < .05*
	Alcohol	42	44	46	-
Ranked Top 3	Drugs	98	100	96	-
	<u>Cigarettes</u>	<u>85</u>	<u>92</u>	<u>80</u>	p < .05*
	Alcohol	90	93	83	p < .05*

\*Z-test for the significance of difference between proportions at .05 level.

### 6.3.1.6 Summary

Table 6.25 presents a summary of the section's key findings. For many respondents, the idea of addiction was not restricted to substances such as alcohol, drugs and tobacco but also incorporated addiction to activities such as gambling, watching TV and playing video games, and to food items such as fast foods, chocolates and soft drinks.

Uncertainty about whether individual items were possibly addictive, measured in the percentage of 'don't know' responses, was low across the majority of items (less than 20%) and suggested that respondents had generally clear ideas about addiction. This was especially the case for cigarettes (1%), drugs (2%), gambling (3%) and alcohol (4%) which had the lowest percentages of uncertainty. Of the ten items, respondents were most uncertain about playing sports and soft drinks: 20% and 19% respectively did not know whether these items were possibly addictive.

For strength of addiction, Table 6.25 shows that drugs (88%) and cigarettes (82%) were rated as very strong by the largest percentage of respondents. Apart from gambling and alcohol which were rated as very strong addictions by less than 60% of respondents, the remaining items were generally rated as weak or very weak by the majority.

For the ranking of items on the basis of hardest to stop, easiest to be addicted to and most dangerous addiction, drugs, cigarettes and alcohol were consistently selected by respondents as the top three items on these measures.

Perceptions relating to cigarettes were of particular interest in the present thesis and results above showed that there were some significant differences in perceptions when gender, school type, school year and smoking status were considered.

In relation to gender, generally more girls than boys believed that cigarettes were addictive. Girls also rated the strength of this addiction more strongly than did boys. Overall however, boys and girls did not significantly differ in how they ranked cigarettes for ease of addiction (generally less than drugs but more than any other item), and difficulty in stopping when addicted (generally about the same as drugs and more than any other item). For danger if addicted, both boys and girls generally rated cigarettes as less dangerous than drugs but more than any other item. However, more girls than boys ranked cigarettes in the top three of most dangerous items.

In relation to school type, there were no significant differences in judging whether cigarettes were addictive or in rating the addictive strength of cigarettes. Differences however were noted in relation to ranking the ease of becoming addicted and the danger when addicted. For ease of addiction, more government than non-government school students ranked cigarettes in the top one, top two and top three of items. For danger when addicted, more government than non-

government school students ranked cigarettes in the top two and top three of items.

Overall, there were no statistically significant differences by school year in relation to judgements that cigarettes could be addictive or in relation to rating the addictive strength of cigarettes (rated overall as very strong). However, in rankings for hardest to stop, easiest to be addicted and most dangerous when addicted, more younger than older students nominated cigarettes in the top one, top two and top three of items.

Table 6.26 presents a summary of perceptions of cigarette addictiveness by smoking status. In contrast to primary school data in which considerable differences were found for never and current smokers, results for secondary school data showed little substantive differences. About the same proportions of secondary school never smokers, triers and current smokers thought that cigarettes were addictive and very strongly so. There were no large differences in the percentage of respondents in each group that ranked cigarettes as top for hardest to stop and easiest to become addicted to. Although there were some differences in top three rankings for these categories, the difference was small. For addiction danger, more triers (12%) than never (5%) or current smokers (7%) ranked cigarettes as top. However, top three rankings for this category were not substantially different.

Table 6.25

Summary of Main Results – Perceptions of General Addiction

Items (Factor Groups)	Addictive %		Addictive Strength %		Hard To Stop %		Addictive Ease %		Addictive Danger %	
	Yes	Don't Know	Very Strong	Weak or Very Weak	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3
<u>Cigarettes</u>	<u>93</u>	<u>1</u>	<u>82</u>	<u>3</u>	<u>26</u>	<u>87</u>	<u>35</u>	<u>80</u>	<u>8</u>	<u>86</u>
Drugs	93	2	88	3	62	93	35	75	86	98
Gambling	90	3	57	8	1	9	8	34	-	15
Alcohol	91	4	59	6	4	76	8	64	4	90
Watching TV	58	14	20	48	1	3	3	9	1	2
Video Games	66	11	23	45	1	3	2	9	-	1
Playing Sports	37	20	18	52	1	1	1	2	-	-
Fast Food	51	17	12	51	-	2	2	7	-	3
Chocolates	72	8	13	52	1	3	6	15	1	2
Soft Drinks	44	19	13	62	-	2	-	4	-	1

Table 6.26

Summary of Main Results – Secondary School Students’ Perceptions of Cigarette Addictiveness x Smoking Status

Smoking Status	Addictive %		Addictive Strength %		Hard To Stop %		Addictive Ease %		Addictive Danger %	
	Yes	Don't Know	Very Strong	Weak or Very Weak	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3	Ranked Top 1	Ranked Top 3
Never Smokers	93	1	82	4	26	90	35	76	5	85
Triers	95	1	79	1	26	86	34	86	12	92
Current Smokers	93	1	78	3	25	82	39	81	7	80



## **6.3.2 Conceptualisation of smoking and addiction**

This section presents the results for secondary school students' perceived role of addiction in adult and youth smoking behaviour, what it means to be addicted to smoking, its perceived consequences, and beliefs about why and when smoking addiction happens were explored.

### **6.3.2.1 Perceptions of the role of addiction in adult and youth smoking**

Two sets of questions explored whether students thought adults and youths smoke for different reasons or motives.

For the first question, all respondents were asked:

- whether adult smokers who said they were addicted to cigarettes used this as an excuse for not quitting or were really addicted.
- whether youth smokers who said they were addicted to cigarettes used this as an excuse to feel grown up or were really addicted.

For the second question, all respondents were asked to select a single main reason why adults and young people smoke cigarettes. Four reasons were provided and these were that adults/young people smoke:

- mainly because their friends smoke
- mainly because they are stressed
- mainly because they want to look cool
- mainly because they are addicted

#### **Addiction as an 'excuse' for youth and adult smoking**

As for primary school students, Figure 6.15 shows that almost 80% of respondents believed adults who claim to be addicted really were addicted. In

contrast, over 60% of respondents thought that youth smokers who claimed to be addicted were using addiction as an excuse to appear ‘cool’. About a third of respondents (38%) did think that young smokers who claim to be addicted really are so. This suggests that even though the broad perception is that young people smoke for reasons relating to image and friends, a large number of respondents nevertheless believe that young people can or do become addicted to smoking.

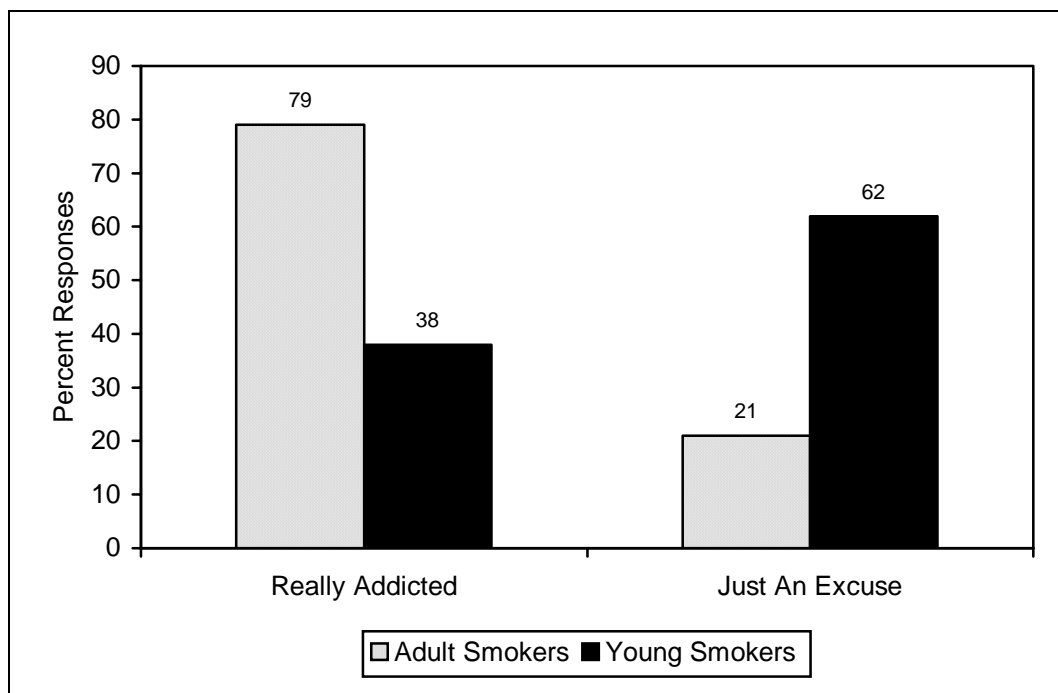


Figure 6.15 – Secondary School Students' Perceptions of Whether Adult Smokers vs. Young Smokers Are Really Addicted

*Differences by Gender, School Year, School Type and Smoking Status*

Overall, the same pattern of findings as presented above was found for each of gender, school type, school year and smoking status.

Chi-square showed no differences in the results by gender (adult smokers:  $\chi^2 = .966$ ,  $df = 1$ ,  $p > .05$ ; youth smokers:  $\chi^2 = .245$ ,  $df = 1$ ,  $p > .05$ ).

For school year (Table 6.27), chi-square showed that a statistically significant difference for perceptions relating to adult smokers ( $\chi^2 = 9.774$ ,  $df = 2$ ,  $p < .01$ )

but not for perceptions relating to youth smokers ( $\chi^2 = 5.146$ ,  $df = 2$ ,  $p > .05$ ). Year Ten students were more likely than Year Eight or Nine students to consider that adult smokers used addiction as an ‘excuse’ for smoking.

*Table 6.27  
Perceptions Of Whether Adults & Youths Are Addicted x School Year*

		School Year %			
		Year 8 (n = 183)	Year 9 (n = 182)	Year 10 (n = 182)	Total (n = 547)
Adult Smokers	Just An Excuse	17	18	29	21
	Really Addicted	83	82	71	79
	Total	100	100	100	100
		Year 8 (n = 183)	Year 9 (n = 182)	Year 10 (n = 180)	Total (n = 545)
Youth Smokers	Just An Excuse	56	63	67	62
	Really Addicted	44	37	33	38
	Total	100	100	100	100

For smoking status, no significant differences were found for adult smoking ( $\chi^2 = .180$ ,  $df = 2$ ,  $p > .05$ ) or youth smoking ( $\chi^2 = 1.283$ ,  $df = 2$ ,  $p > .05$ ).

Table 6.28 shows a statistically significant difference by school type for perceptions relating to adult smokers ( $\chi^2 = 8.078$ ,  $df = 1$ ,  $p < .01$ ) but not youth smokers ( $\chi^2 = .289$ ,  $df = 1$ ,  $p > .05$ ).

*Table 6.28  
Perceptions Of Whether Adults & Youths Are Addicted x School Type*

		School Type %		
		Government (n = 273)	Non-government (n = 276)	Total (n = 549)
Adult Smokers	Just An Excuse	17	26	22
	Really Addicted	83	74	78
	Total	100	100	100
		Government (n = 270)	Non-government (n = 275)	Total (n = 545)
Youth Smokers	Just An Excuse	63	61	62
	Really Addicted	37	39	38
	Total	100	100	100

### Perceived main reasons why adults smoke and why youths smoke

For the second question (*'select a single main reason why adults and young people smoke cigarettes'*), Figure 6.16 shows that the main motive attributed to why adults and young people smoke cigarettes were clearly different.

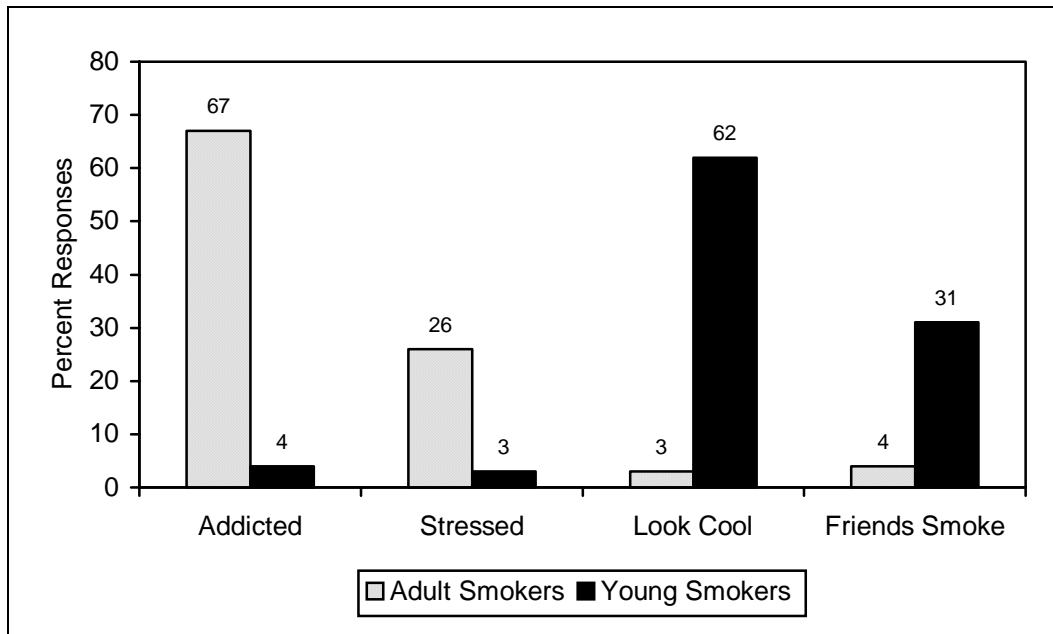


Figure 6.16 – Secondary School Students' Perceptions of Why Adults vs. Young People Smoke

The majority of respondents believed that addiction (67%) and stress (26%) were the main drivers of adult smoking. Less than 10% thought that adults mainly smoke for social (having friends who smoke – 4%) or image (wanting to look cool – 3%) reasons. This perception was reversed for why young people were believed to smoke – 62% thought that image and 31% thought that social objectives were the dominant drivers of smoking behaviour and, addiction (4%) and stress (3%) were not seen as the main reason why young people smoke.

Overall, these results were very similar to findings from primary school data.

### *Differences by Gender, School Year, School Type and Smoking Status*

Overall, the pattern of results obtained generally did not differ by gender, school type, school and smoking status.

For gender however, statistically significant differences were found for how boys and girls perceived the main motives of adult and youth smoking. More girls than boys thought that addiction was the primary cause of adult smoking (73% vs. 61% respectively) while more boys than girls thought that stress was an important consideration (29% vs. 24% respectively) ( $\chi^2 = 13.403$ ,  $df = 3$ ,  $p < .01$ ).

In relation to the main reasons that young people smoke, boys placed greater importance on wanting to look cool (70% boys vs. 54% girls) while girls placed greater significance on smoking because friends also smoke (38% girls vs. 24% boys) ( $\chi^2 = 15.305$ ,  $df = 3$ ,  $p < .01$ ).

For perceptions by school type, more government school students attributed adult smoking to addiction (73% vs. 61%) while more non-government school students attributed adult smoking to stress (31% vs. 22%) ( $\chi^2 = 10.428$ ,  $df = 3$ ,  $p < .05$ ). For perceived reasons of youth smoking, differences by school type were not statistically significant ( $\chi^2 = 3.560$ ,  $df = 3$ ,  $p > .05$ ).

For school year, there were no statistically significant differences in student perceptions of reasons why adults smoke ( $\chi^2 = 6.921$ ,  $df = 6$ ,  $p > .05$ ). In relation to reasons why young people smoke (Figure 6.17), however, looking cool gained in relative importance as a main reason as school year decreased, while having friends who smoke gained in relative importance as school year increased ( $\chi^2 = 21.106$ ,  $df = 6$ ,  $p < .01$ ).

There were no statistically significant differences for perceptions of adult smoking by smoking status ( $\chi^2 = 10.191$ ,  $df = 6$ ,  $p > .05$ ). However, Figure 6.18 shows systematic increase in addiction and systematic decrease in 'stress' from never to current smokers.

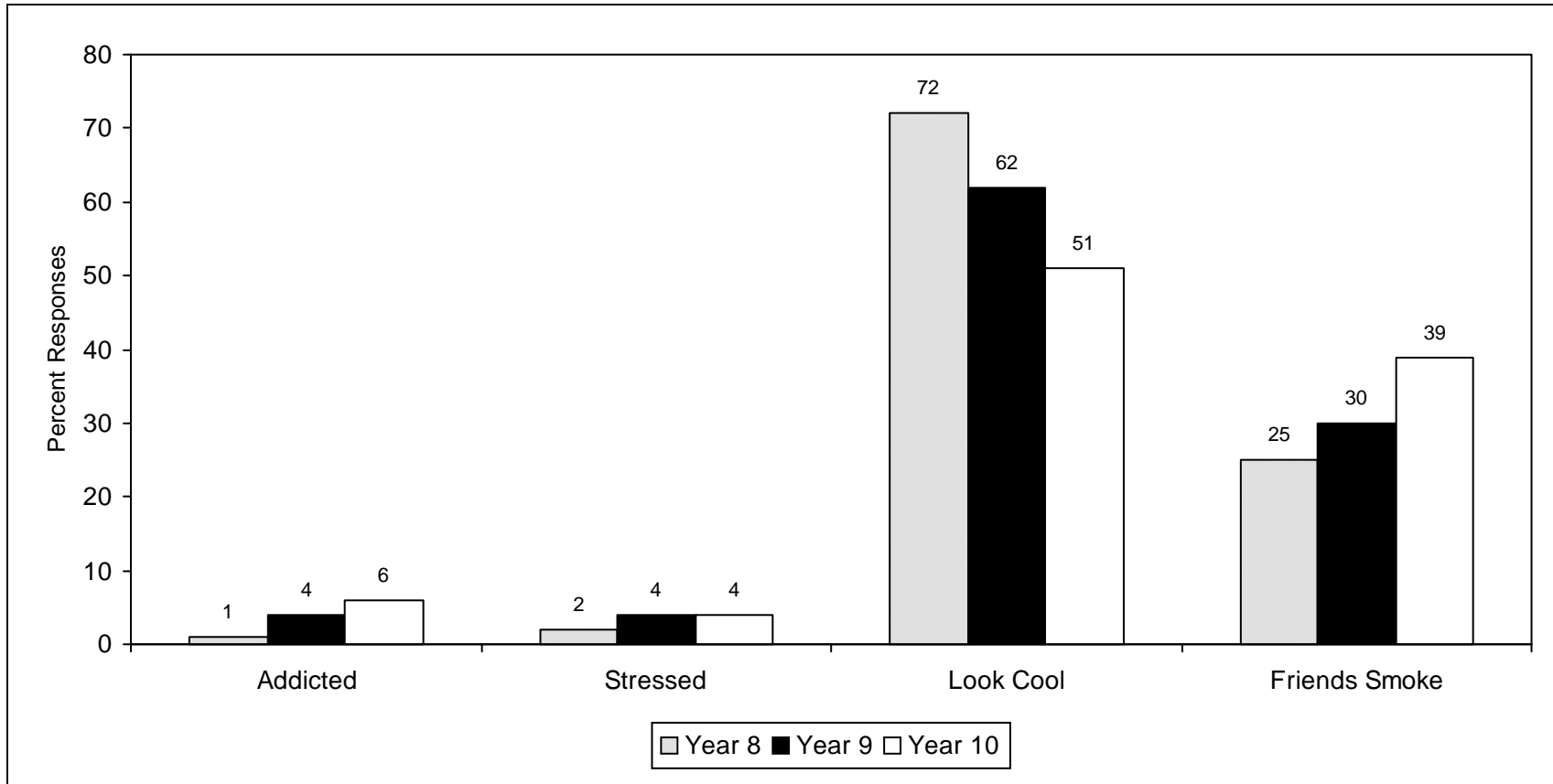


Figure 6.17 – Secondary School Students' Perceptions of Why Youths Smoke x School Year

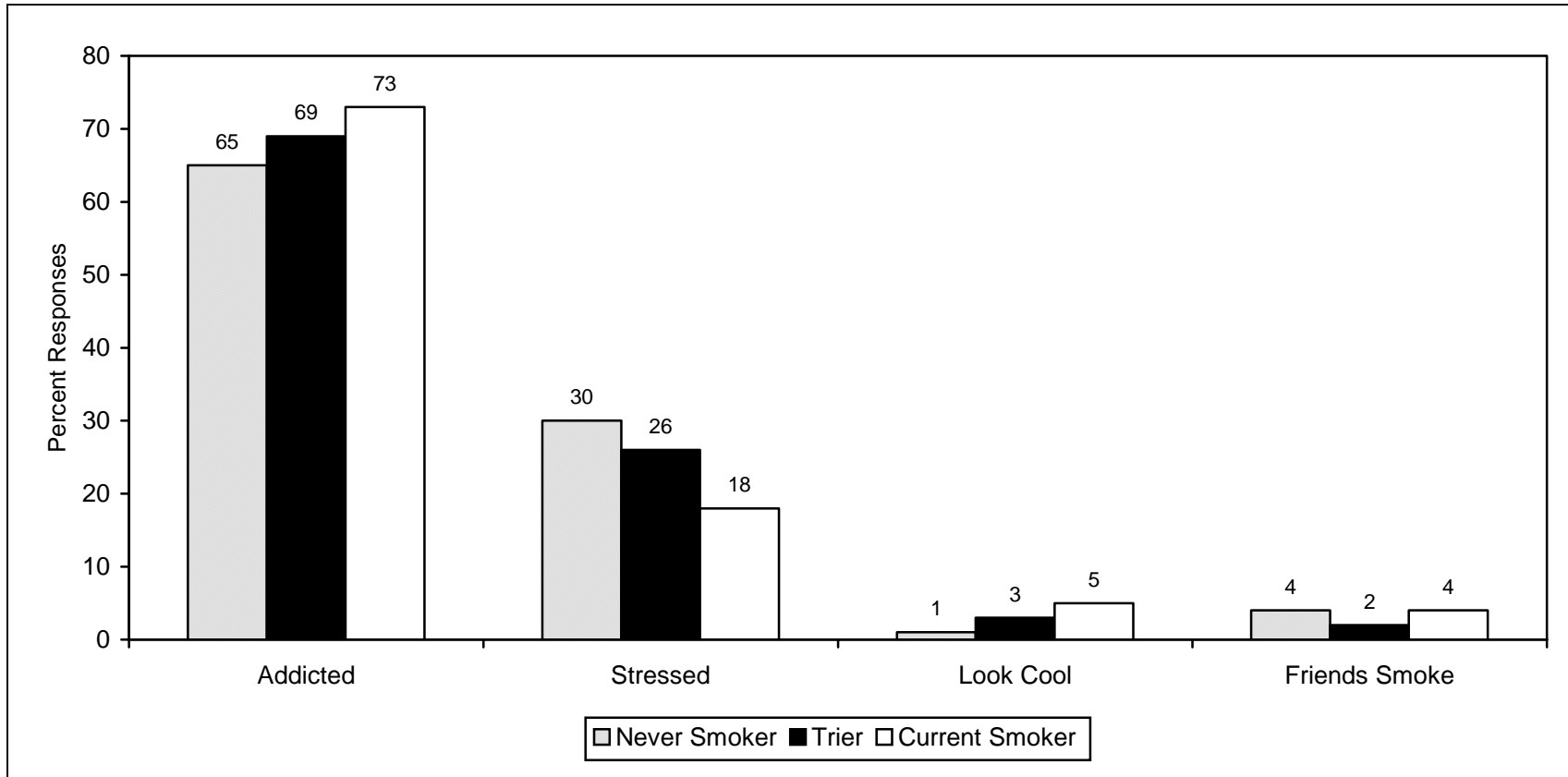


Figure 6.18 – Secondary School Students' Perceptions of Why Adults Smoke x Smoking Status

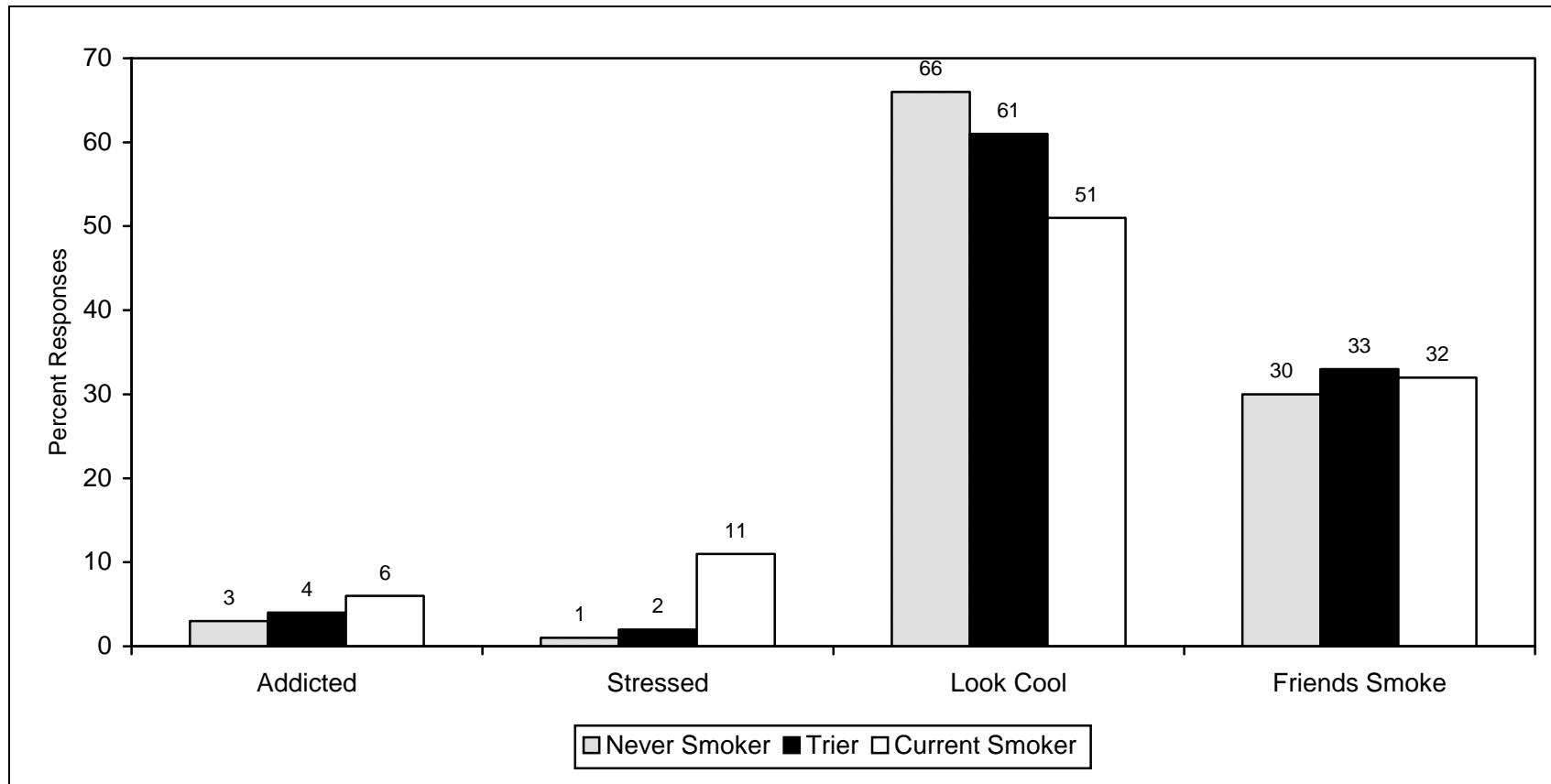


Figure 6.19 – Secondary School Students' Perceptions of Why Youths Smoke x Smoking Status



For perceptions of youth smoking by smoking status ( $\chi^2 = 29.226$ ,  $df = 6$ ,  $p < .01$ ), Figure 6.19 shows that there was a systematic decrease in the nomination of 'look cool' on the 'dimension' of smoking. Additionally, there was an increase in the nomination of 'stress' and a slight increase in the nomination of 'addicted' with smoking.

### **6.3.2.2 Perceptions of why people get addicted to smoking**

Respondents were given the following six options and asked for a single main reason why people become addicted to smoking:

1. Because cigarettes have got nicotine in them and that makes people can't stop smoking
2. Because cigarettes have a drug in them that makes people can't stop smoking
3. Because cigarettes have got lots of chemicals and poisons in them that make people can't stop smoking
4. Because people enjoy having cigarettes and so they don't want to stop smoking
5. Because people like the taste of cigarettes and so they don't want to stop smoking
6. Because people get used to smoking when doing things

The six causes can be grouped as: (a) the content of cigarettes (1, 2 and 3); (b) pleasure from smoking (4 and 5); and (c) habit (6). In the survey instrument, this grouping was not revealed and the six causes were presented to respondents randomly ordered.

Figure 6.20 shows that almost 90% of respondents attributed addiction to nicotine, drugs, or chemicals and poisons in cigarettes – 53% believed that nicotine in cigarettes was the main reason people were addicted to smoking, 27% selected 'cigarettes contain a drug' and 9% selected 'chemicals and poisons'. The remaining reasons were each selected by 5% or less of respondents.

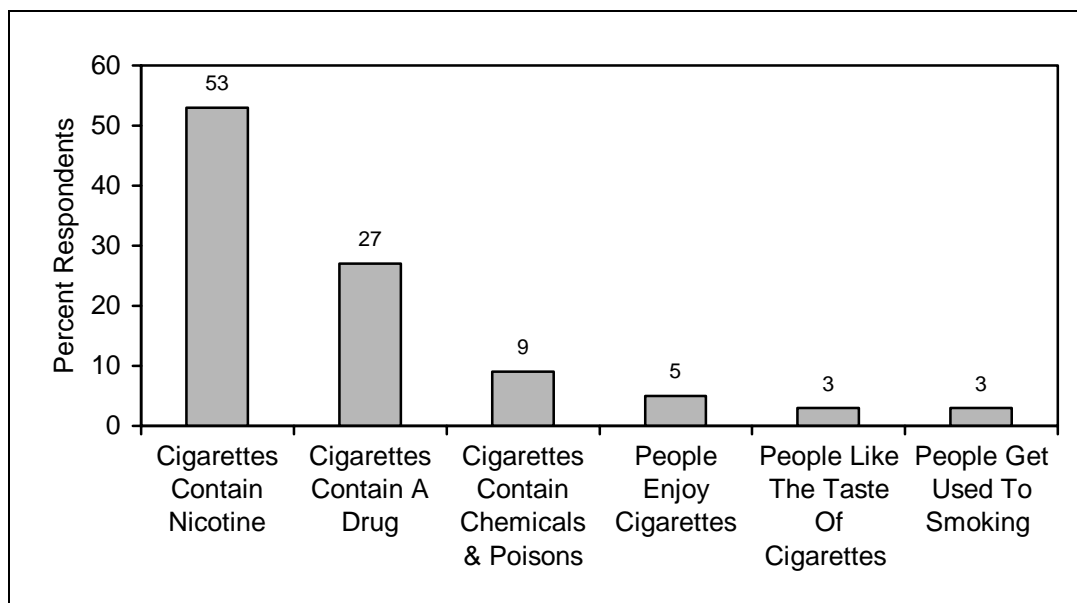


Figure 6.20 – Secondary School Students' Perceptions of Why People Get Addicted To Smoking

#### *Differences by Gender, School Year, School Type and Smoking Status*

In the analyses below, the six original categories of causes were combined into the three groups described in the introduction – (a) content of cigarettes; (b) pleasure of smoking; and (c) habit.

Overall, perceptions of the majority of respondents did not differ substantially by school year ( $\chi^2 = 6.943$ ,  $df = 4$ ,  $p > .05$ ), smoking status ( $\chi^2 = 4.068$ ,  $df = 4$ ,  $p > .05$ ) or gender ( $\chi^2 = 6.170$ ,  $df = 2$ ,  $p > .05$ ). School type produced a significant result ( $\chi^2 = 11.203$ ,  $df = 2$ ,  $p < .01$ ), but the differences were minor: more non-government school students selecting pleasure (11% vs. 4%) and to more government school students selecting habit (6% vs. 2%).

#### **6.3.2.3 Perceptions of when addiction occurs**

All respondents were asked to state whether addiction happens...

- when people smoke all the time or
- when people smoke sometimes or occasionally or

- when people smoke just once

Figure 6.21 shows that 59% of respondents believed addiction happens only when cigarettes are smoked persistently. About a quarter of respondents thought that smoking occasionally would lead to addiction while 15% believed that smoking just once would be sufficient.

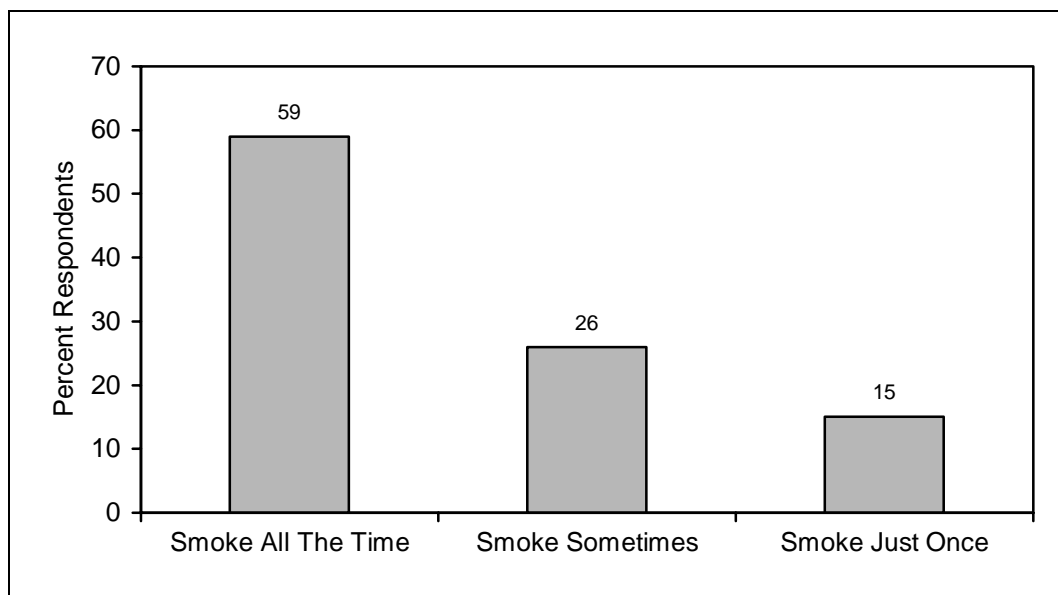


Figure 6.21 – Secondary School Students' Perceptions of When Addiction Happens

#### *Differences by Gender, School Year, School Type and Smoking Status*

For gender, Figure 6.22 shows that girls were more likely than boys to believe that addiction occurs by smoking frequently – almost 70% of girls compared to 50% of boys thought that addiction occurred by smoking all the time. On the other hand, boys were more likely than girls to believe that smoking occasionally (33% boys vs. 18% girls) and smoking just once (17% boys vs. 14% girls) would cause addiction ( $\chi^2 = 18.814$ ,  $df = 2$ ,  $p < .01$ ).

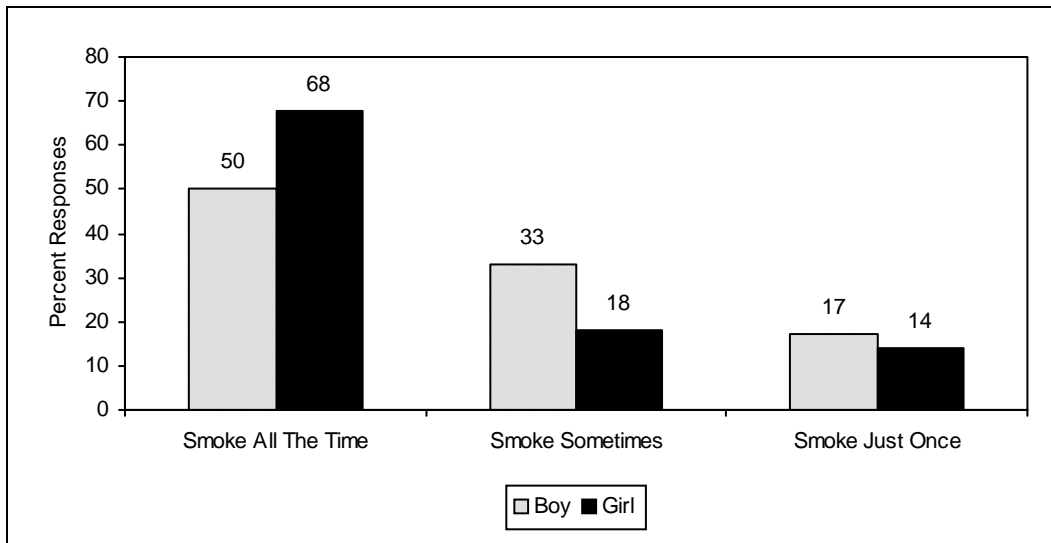


Figure 6.22 – Secondary School Students' Perceptions of When Addiction Happens x Sex

Figure 6.23 shows that more students from government schools believed that persistent smoking was needed for addiction to occur (68% government vs. 49% non-government) while more students from non-government schools believed that smoking occasionally (32% non-government vs. 19% government) and smoking just once (19% non-government vs. 13% government) would suffice ( $\chi^2 = 19.723$ ,  $df = 2$ ,  $p < .01$ ).

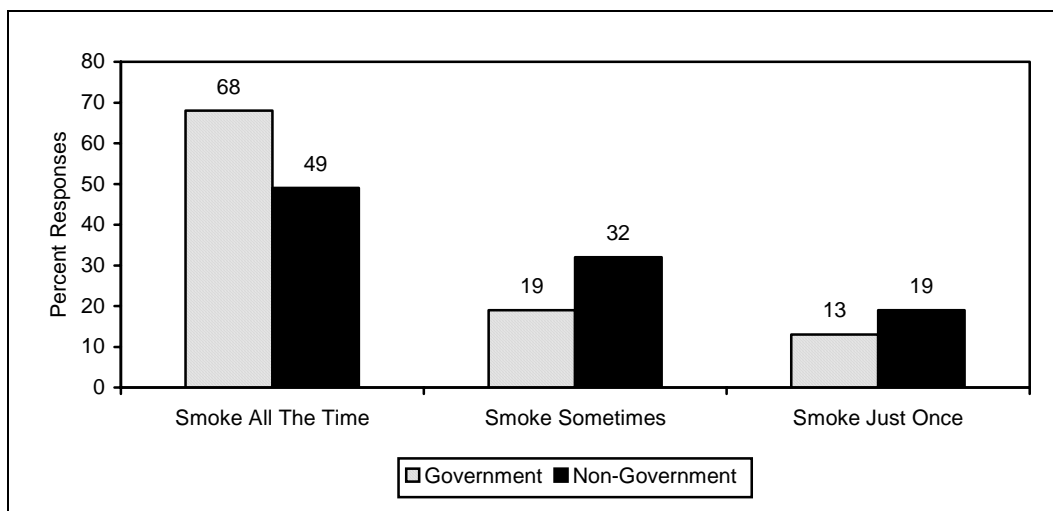


Figure 6.23 – Secondary School Students' Perceptions of When Addiction Happens x School Type

For school year, Figure 6.24 shows a possible developmental effect in the selection of smoking sometimes versus smoking just once. Broadly, the number of students selecting smoking sometimes appears to increase as school year increases (20% Year Eight vs. 25% Year Niine vs. 31% Year Ten), while the number of students selecting smoking just once appears to decrease as school year increases (11% Year Ten vs. 12% Year Nine vs. 24% Year Eight) ( $\chi^2 = 17.126$ ,  $df = 4$ ,  $p < .01$ ).

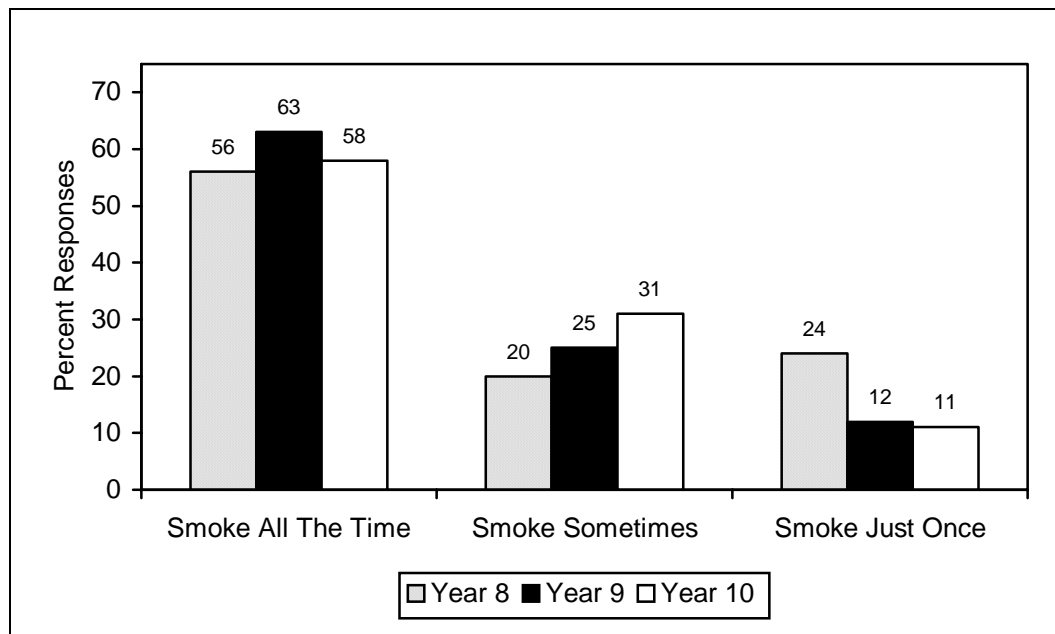


Figure 6.24 – Secondary School Students' Perceptions of When Addiction Happens x School Year

Finally, Figure 6.25 shows that substantially more smokers than other respondents believed addiction occurs when smoking is persistent – 74% of current smokers vs. 65% of triers vs. 51% of never smokers selected smoke all the time. On the other hand, never smokers and triers were more likely to believe that smoking sometimes (27% never smokers vs. 25% triers vs. 22% current smokers) and smoking just once (22% never smokers vs. 10% triers vs. 4% current smokers) would cause addiction ( $\chi^2 = 29.449$ ,  $df = 4$ ,  $p < .01$ ).

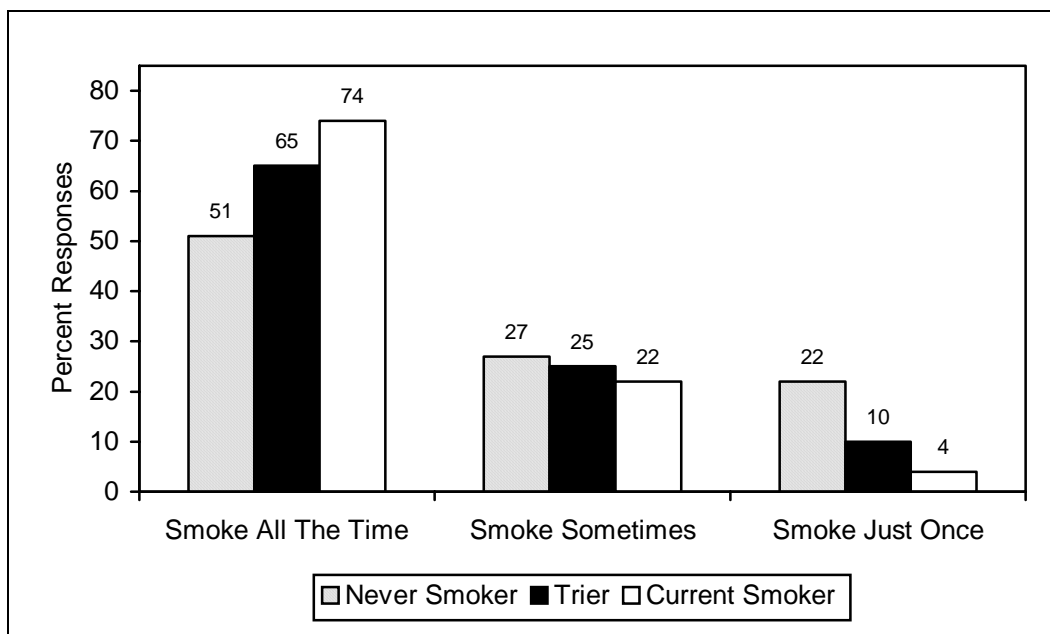


Figure 6.25 – Secondary School Students' Perceptions of When Addiction Happens x Smoking Status

### 6.3.2.4 Perceptions of what it means to be addicted to smoking

This section explores the perceived meanings and consequences given to smoking addiction.

#### Perceived meaning of addiction

For the meanings of smoking addiction, all respondents were asked:

*When someone is addicted to smoking, it mainly means that...*

1. They smoke automatically without thinking
2. They get used to smoking when doing things
3. They enjoy smoking
4. They like the taste of smoking
5. They have no control over their smoking
6. They have a craving to keep smoking
7. When they see people smoking, then they just want to smoke too

Broadly, the above statements define addiction in terms of habituation (1 and 2), pleasure (3 and 4), loss of control (5), withdrawal (6) and socialisation (7). In the survey instrument, these categories of meanings were not revealed and the seven statements were presented to respondents randomly ordered.

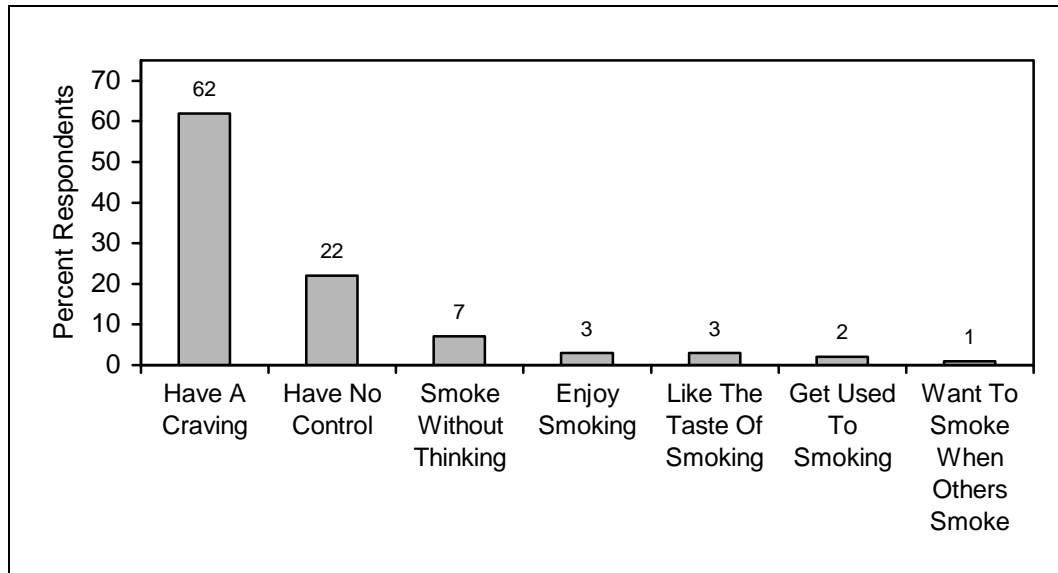


Figure 6.26 – Secondary School Students' Perceptions of What It Means To Be Addicted To Smoking

Figure 6.26 shows that the two most frequently nominated categories were being addicted to smoking in terms of having cravings (62%) and being addicted in terms of loss of control (22%).

#### *Differences by Gender, School Year, School Type and Smoking Status*

The above response categories were combined to increase the number of cases within some categories and to reflect the five categories of meanings of addiction described in the introduction. Specifically, ‘smoking automatically without thinking’ and ‘get used to smoking’ were combined into a ‘habit’ category; while ‘enjoying smoking’ and ‘liking the taste of smoking’ were consolidated into a ‘pleasure’ category. Remaining responses – ‘have a craving’, ‘smoke when other people smoke’ and ‘have no control over smoking’ – were not altered. Response categories were similarly combined for primary school data (chapter five).

More girls defined being addicted in terms of losing control (25% girls vs. 19% boys) while more boys defined being addicted in terms of pleasure (9% boys vs. 3% girls) ( $\chi^2 = 10.932$ ,  $df = 4$ ,  $p < .05$ ).

Government and non-government school students did not differ significantly in their perceptions of what it means to be addicted ( $\chi^2 = 7.777$ ,  $df = 4$ ,  $p > .05$ ).

Students in Years Eight, Nine and Ten did not differ significantly in perceptions of the meaning of addiction by school year ( $\chi^2 = 5.797$ ,  $df = 8$ ,  $p > .05$ ).

The distribution of responses was significant for smoking status ( $\chi^2 = 24.653$ ,  $df = 8$ ,  $p < .01$ ): more never smokers than other respondents selected losing control (26% never smokers vs. 17% triers vs. 18% current smokers), while more current smokers than other respondents selected pleasure (14% current smokers vs. 3% triers vs. 4% never smokers).

### **Perceived consequences of addiction**

Respondents' perceptions of the consequences of smoking addiction were measured by asking:

*What do you think is the single worst thing about being addicted to smoking?*

- You smoke more than you want to
- You get a craving in your body
- You feel bad when you can't have a cigarette
- You get in trouble at home for smoking
- You get in trouble at school for smoking
- You have no control over smoking



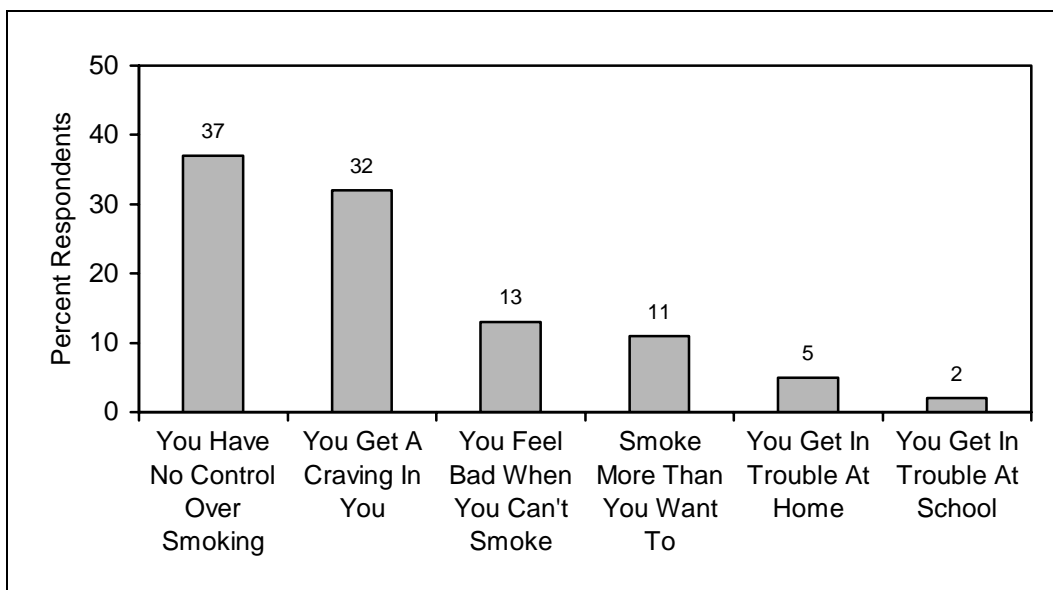


Figure 6.27 – Secondary School Students' Perceptions of the Single Worst Thing about Being Addicted To Smoking

Figure 6.27 shows that the majority of respondents thought that having no control over smoking (37%) or having cravings (32%) were the worst consequences of being addicted to smoking. Feeling bad and smoking more than desired were seen as the worst consequences by 13% and 11% of respondents respectively while getting in trouble at home and at school were seen to be the worst consequences for 5% and 2% of respondents respectively.

#### *Differences by Gender, School Year, School Type and Smoking Status*

Responses for the six original statements were combined to increase the number of cases within the categories. Specifically, three categories were derived: 'have no control' and 'smoke more than you want' were combined into a 'losing control' category, 'get a craving' and 'feel bad when you can't have a cigarette' were combined into a 'having cravings' category, and 'get in trouble at home' and 'get in trouble at school' were consolidated into a 'getting in trouble' category. Response categories were similarly combined for primary school data (chapter five).

There were no significant differences in boys and girls' perceptions ( $\chi^2 = .405$ ,  $df = 2$ ,  $p > .05$ ).

More government than non-government school students selected cravings (51% government vs. 40% non-government) while more non-government school students selected losing control (54% non-government vs. 41% government) ( $\chi^2 = 9.253$ ,  $df = 2$ ,  $p < .05$ ).

There were significant but small differences by school year. The selection of 'losing control' and 'having cravings' generally decreased from Year Eight to Year Ten (losing control: 51% Year Eight vs. 46% Year Nine vs. 47% Year Ten; having cravings: 47% Year Eight vs. 45% Year Nine vs. 44% Year Ten), while 'getting in trouble' increased after Year Eight (2% Year Eight vs. 10% Year Nine vs. 9% Year Ten) ( $\chi^2 = 11.917$ ,  $df = 4$ ,  $p < .05$ ).

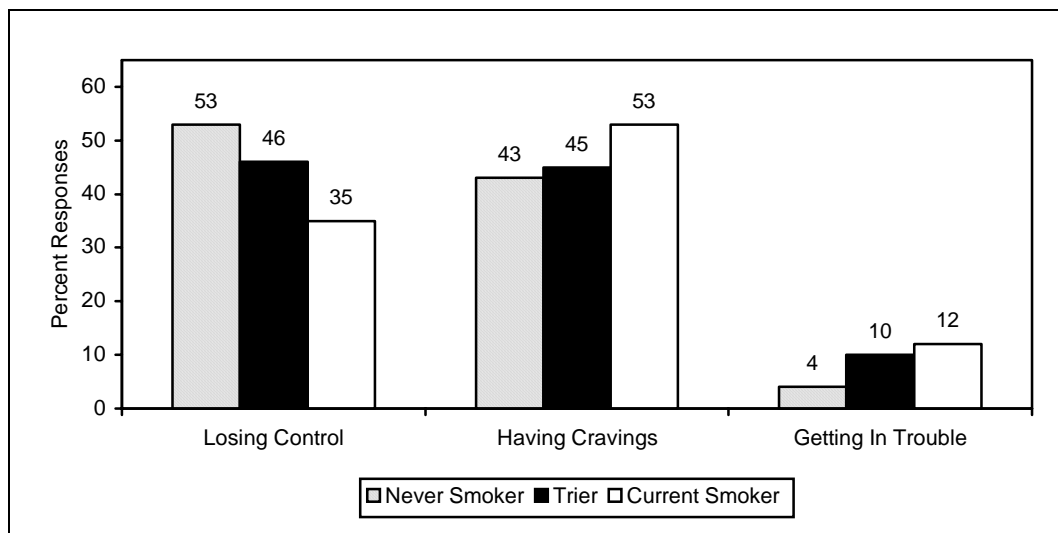


Figure 6.28 – Secondary School Students' Perceptions of Addiction Consequences x Smoking Status

Figure 6.28 shows that smoking experience produced substantially different responses for perceptions of addiction consequences. More never smokers than triers or current smokers selected 'losing control' as the worst consequence of being addicted (53% never smokers vs. 46% triers vs. 35% current smokers),

while more current smokers than triers or never smokers selected cravings (53% current smokers vs. 45% triers vs. 43% never smokers) and getting in trouble (12% current smokers vs. 10% triers vs. 4% never smokers) ( $\chi^2 = 16.708$ ,  $df = 4$ ,  $p < .01$ ).

### **Hypothesis H2 – Losing Control**

It was hypothesised (H2) that issues of control would be more salient for never smokers than for current smokers. In the results above, never smokers were found to be significantly more likely than current smokers to explain the meaning and consequence of smoking addiction in terms of losing control. Comparing definitions of what it means to be addicted to smoking, 26% of never smokers compared to 18% of current smokers nominated 'loss of control'. Likewise, in selecting what the single worst consequence of being addicted to smoking is, 53% of never smokers compared to 35% of current smokers selected 'loss of control'. These results support the stated hypothesis.

### **6.3.3 Perceptions of smoking addiction and intentions to smoke**

This section explores the relationship between secondary school students' perceptions of smoking addiction and intentions to smoke cigarettes. In particular, perceptions of whether trying smoking is possible without becoming addicted, whether addiction happens immediately, whether addiction can be avoided and concerns becoming addicted are investigated. Differences by gender, school year, school type and smoking status are included as part of the overall investigation of respondents' addiction beliefs. However, the main focus in the following subsections is on the relationship between never smokers' intentions to try smoking and beliefs about addiction. Results for never smokers' long-term smoking intentions (i.e., intentions to become a regular smoker) are presented for comparisons.

Logistic regression analyses were used to specify the relationship between beliefs and intentions to smoke, and to quantify each relationship in terms of a probability outcome. Two sets of probability outcomes (odds ratios or ORs) were calculated for secondary school data. Variables (i.e., secondary school students' perceptions of smoking addiction) were computed separately to derive a series of single factor models for the first set of probability or odds analyses. Individual variables were then analysed again with gender and school year as covariates to derive a second series of adjusted models involving multiple factors. These calculations (i.e., unadjusted ORs and ORs adjusted for gender and school year) form the basis of comparisons with primary school data where appropriate.

All variables were entered as categorical predictors in the models and the Simple (First) Contrast method was used to contrast the individual effect of categories within those predictors (e.g., 1 (reference category) vs. 2; 1 vs. 3; 1 vs. 4, etc) (Field, 2003). Regressions involving multiple variables used the Forced Entry Method (i.e., covariates were entered into the model as one block (Field, 2003)).

*Intentions to smoke cigarettes – never smokers*

For never smokers, intentions to smoke broadly relate to expectations of future smoking. As described in the previous analyses of primary school data, these intentions can be separated into intentions to try smoking and intentions to take up smoking. The key difference between the two is that trying smoking is experimental and short term (non-permanent), while taking up smoking is regular and persists over a long period of time, usually into adulthood.

In the survey instrument, intentions to try smoking and intentions to take up smoking were determined by asking never smokers whether they...

- might like to try smoking just to see what smoking is like?

and whether they...

- would like to take up smoking when older?

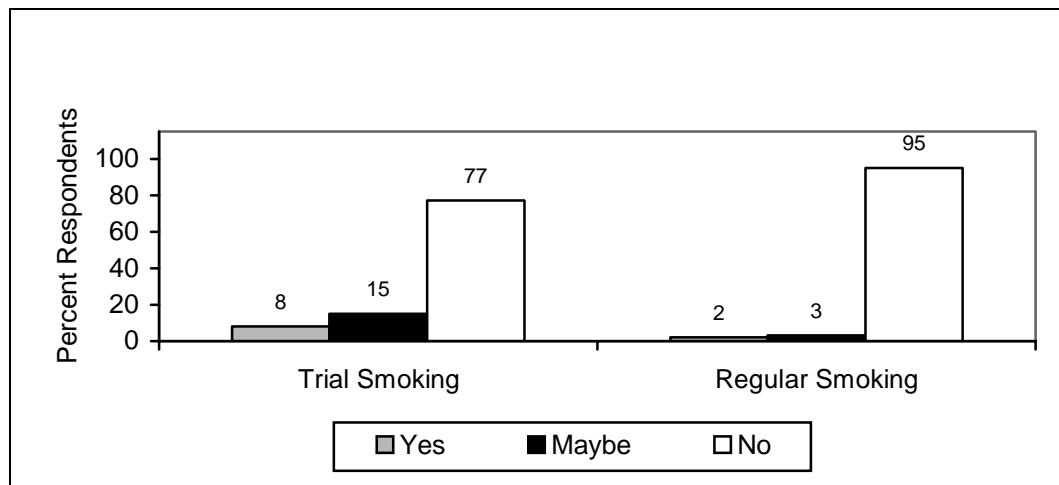


Figure 6.29 – Secondary School Never Smokers' Intentions to Smoke

Figure 6.29 shows that the vast majority of never smokers stated that they did not intend to smoke cigarettes – 77% had no intentions to try smoking and 95% had no intentions to take up regular smoking. However, about a quarter of respondents

reported that they would like to try (8% yes and 15% maybe) and one in twenty said that they would like to take up regular smoking (2% yes and 3% maybe).

For many respondents, wanting to experiment with smoking did not appear to correspond with wanting to take up smoking on a regular basis. Table 6.29 shows the relationship between short-term and long-term intentions: all of those who stated no intention to try smoking also stated no intention to take up regular smoking: Similarly, the vast majority of respondents (86%) who stated that they may try smoking expressed no intention to smoke regularly. Of those intending to try smoking, 68% did not intend to take up smoking regularly but 14% stated that maybe they would take up regular smoking while 18% said that they intended to take up smoking on a regular basis.

Where appropriate, analyses in the following sections are carried out separately for intentions to try smoking and intentions to take up regular smoking.

*Table 6.29  
Intentions To Try Smoking x Intentions To Take Up Regular Smoking*

Intentions To Take Up Regular Smoking	Intentions To Try Smoking %			Total (n = 287)
	Yes (n = 22)	Maybe (n = 43)	No (n = 222)	
Yes	18	-	-	1
Maybe	14	14	-	4
No	68	86	100	96
Total	100	100	100	100

*Intentions to smoke cigarettes – Current smokers and triers*

For current smokers, intentions to smoke similarly relate to expectations of future smoking which can be separated into intentions to continue smoking (short-term/non-permanent) and intentions to smoke when grown up (long-term/permanent).

In the survey instrument, intentions to continue smoking and intentions to smoke when grown up were determined by asking current smokers whether they expected to...

- still be smoking next year?

and whether they would...

- still be smoking when grown up?

Figure 6.30 shows that about a quarter of respondents expressed intentions to still be smoking next year, 42% stated that maybe they would still be smoking next year while 32% stated that they would not be smoking. For intentions to still be smoking when grown up, 24% thought they would still do so, 38% thought that maybe they would while 38% stated that they would not still be smoking.

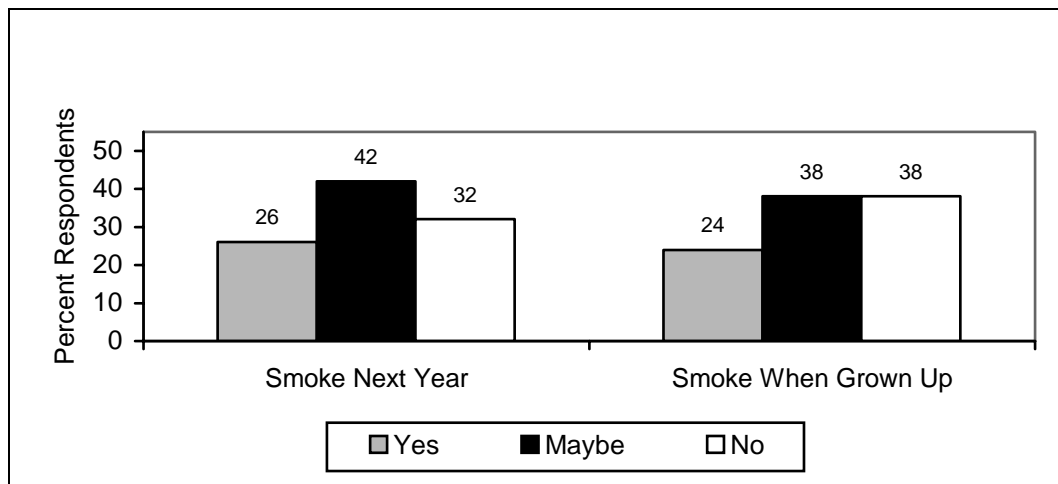


Figure 6.30 – Secondary School Current Smokers' Intentions to Smoke

Table 6.30 shows the relationship between short-term and long-term intentions: 73% respondents with no intentions to continue smoking also stated that they did not intend to still be smoking when grown up while about one quarter stated that they did intend to still smoke (5% yes and 24% maybe). For those who may continue to smoke, 57% said that they may still smoke when grown up, 34% said no they would not while 9% said yes they intended to still do so.

Table 6.30

*Intentions To Continue Smoking x Intentions To Smoke When Grown Up*

Intentions To Smoke When Grown Up	Intentions To Continue Smoking %			Total (n = 106)
	Yes (n = 28)	Maybe (n = 44)	No (n = 34)	
Yes	68	9	5	24
Maybe	25	57	24	38
No	7	34	71	39
Total	100	100	100	100

Two thirds of respondents (68%) intending to continue smoking also said that they intended to smoke when grown up. Only 7% stated that they would not still smoke when grown up and 25% said maybe they would.

Where appropriate, analyses in the following sections are carried out separately for intentions to continue smoking and intentions to still smoke when grown up.

### 6.3.3.1 Opportunities for smoking without addiction

Secondary school students answered two questions relating to perceptions of smoking without becoming addicted. First, never smokers were asked whether they thought it was possible to try smoking without becoming addicted (response categories: ‘yes’, ‘maybe’ or ‘no’); second, all respondents (i.e., never smokers and triers/smokers) were asked to state how quickly they thought addiction happens (this question is further discussed below).

#### Perceived opportunity to try smoking without becoming addicted

Figure 6.31 shows that 31% of never smokers believed that it was possible to try smoking without becoming addicted, 21% thought that maybe it was possible while 48% believed that this was not possible.



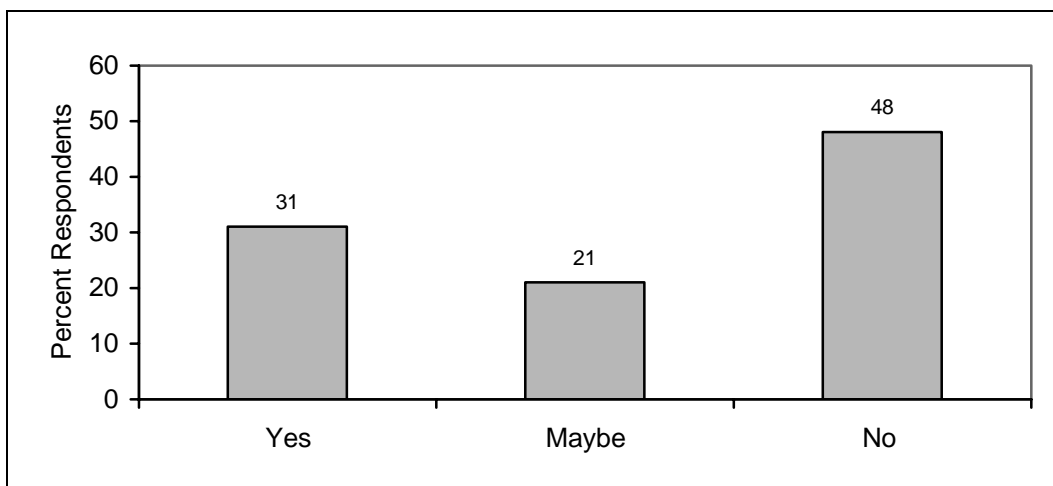


Figure 6.31 – Secondary School Never Smokers' Perceptions of Trial Smoking:  
Can You Try Smoking Without Getting Addicted?

*Differences by Gender, School Type and School Year*

No statistically significant differences were found in perceptions of trying smoking without becoming addicted by gender ( $\chi^2 = .3.71$ ,  $df = 2$ ,  $p > .05$ ) or school type ( $\chi^2 = 1.12$ ,  $df = 2$ ,  $p > .05$ ).

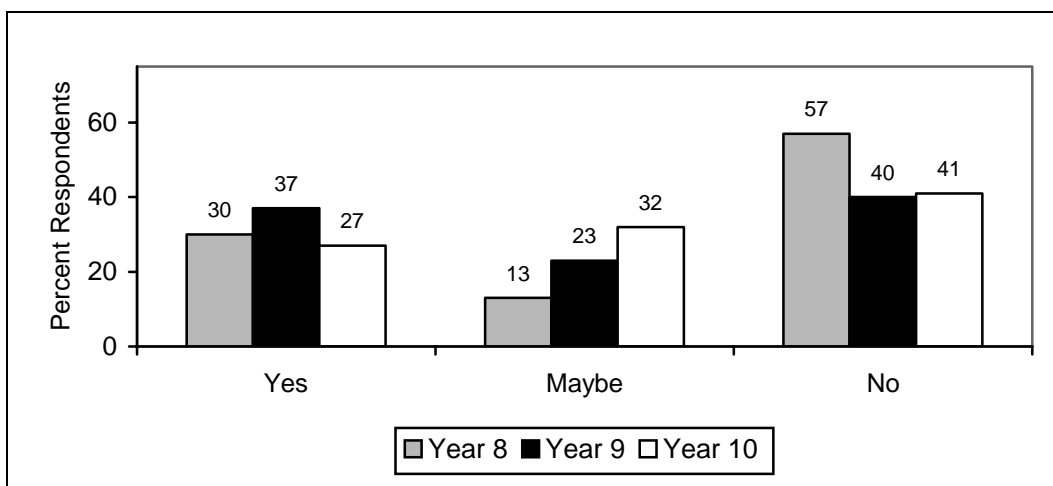


Figure 6.32 – Secondary School Never Smokers' Perceptions of Trial Smoking:  
Can You Try Smoking without Getting Addicted x School Year

For school year, the distribution of responses was statistically significant ( $\chi^2 = 10.02$ ,  $df = 4$ ,  $p < .05$ ). Figure 6.32 shows that the major difference of note is that substantially lesser proportions of Year Nine and Ten students (40%) said 'no'

compared to Year Eight students (57%). It is also of interest that uncertainty increased with school level.

*Smoking Intentions and perceived opportunity to try smoking without becoming addicted*

Table 6.31 shows that never smokers who believed that it was possible to try smoking without becoming addicted were over three times more likely to have intentions to than those who thought it was not possible ( $p < .01$ ). The OR was not significant for intentions to take up regular smoking.

Adjusting for gender and school year slightly reduced the odds for intentions to try smoking which overall, were still positive.

**Perceptions of how quickly addiction happens**

All respondents were asked to state how quickly they thought addiction happens. The question was open-ended but respondents were prompted to answer in number of cigarettes, in number of times smoking or in length of time.

For number of cigarettes, responses ranged from 1 cigarette to 50 cigarettes, from 'a few' cigarettes to 'lots', and from 1 packet to 2 packets. For number of times, responses ranged from 1 time to 20 times, and from 'a few times' to 'lots' of times. For length of time, responses ranged from 1 to several days, weeks, months and years; and from 'not long', to 'long time' and 'very very long time'. These different responses were categorised as follows:

- Immediate – addiction happens after smoking 1 cigarette, 1 time or 1 day, 'not long'
- Small delay – addiction happens after smoking 2 to 9 cigarettes; smoking 2 to 9 times; smoking a few cigarettes; smoking a few times; smoking for a few days

Table 6.31

Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Can You Try Smoking Without Becoming Addicted?	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
- No	1.00	1.00			1.00	1.00		
- Yes/Maybe	3.45**	3.32**	0.001	1.69 – 6.52	1.17	1.03	0.96	0.33 – 3.28

\* p < .05; \*\* p < .01

- Big delay – addiction happens after smoking 10 or more cigarettes; smoking 10 or more times; smoking lots of cigarettes; smoking lots of times; smoking for a few weeks, months or years; smoking for a long time, smoking for a very very long time

Figure 6.33 shows that 25% of respondents believed that addiction happens immediately, 36% believed that addiction happens after a small delay and 39% believed that addiction happens after a big delay.

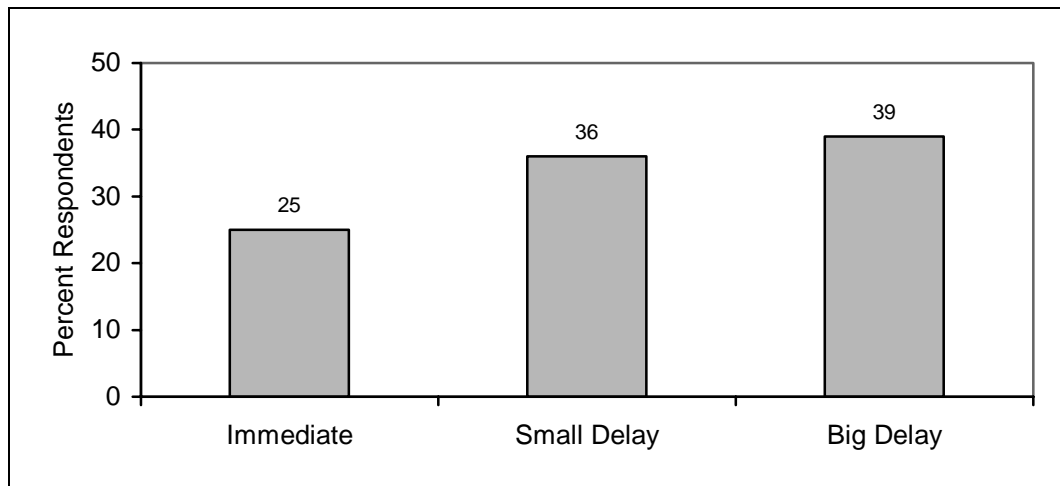


Figure 6.33 – Secondary School Students' Perceptions of When Addiction Happens

*Differences by Gender, School Year and School Type*

The distribution by school year was statistically significant ( $\chi^2 = 10.488$ ,  $df = 4$ ,  $p < .05$ ): Year Eight students were more likely to select 'immediate' compared to Year Nine or Ten students, who, conversely, were more likely to select a 'big delay' (Table 6.32).

There were no significant differences by gender ( $\chi^2 = 2.623$ ,  $df = 2$ ,  $p > .05$ ) or school type ( $\chi^2 = 2.063$ ,  $df = 2$ ,  $p > .05$ ).

*Table 6.32  
Perceptions Of When Smoking Addiction Happens x School Year*

Perceptions of When Smoking Addiction Happens	School Year			Total (n = 432)
	%			
	Year 8 (n = 154)	Year 9 (n = 146)	Year 10 (n = 132)	
Immediate	32	21	21	25
Small Delay	38	37	33	36
Big Delay	30	42	46	39
Total	100	100	100	100

*Differences by Smoking Status*

The distribution of responses was also statistically significant by smoking status ( $\chi^2 = 26.996$ ,  $df = 4$ ,  $p < .001$ ). Table 6.33 shows that more never smokers than other respondents believed that addiction happens immediately (34% never smokers vs. 16% triers vs. 11% smokers) while more current smokers and triers (than never smokers) believed that addiction happens after a big delay (53% current smokers vs. 47% triers vs. 30% never smokers).

*Table 6.33  
Perceptions of When Addiction Happens x Smoking Status*

Perceptions of When Smoking Addiction Happens	Smoking Status			Total (n = 432)
	%			
	Never Smoker (n = 235)	Trier (n = 127)	Current Smoker (n = 70)	
Immediate	34	16	11	25
Small Delay	36	37	36	36
Big Delay	30	47	53	29
Total	100	100	100	100

*Smoking Intentions and perceptions of how quickly addiction happens*

Table 6.34 shows that believing that addiction happens after a ‘big’ delay (vs. addiction happens immediately; and vs. addiction happens immediately/small delay) was associated with near significant and significant increases (respectively) in the odds of never smokers’ intentions to smoke cigarettes. Adjusting for gender and school year did not change the overall result although inclusion of these co-variables in the regression models altered the individual odds by slightly increasing or decreasing them. Generally, believing that addiction happens after a

'big' delay increased the odds of intentions to try smoking by between 1.96 and 2.34 times (unadjusted ORs), and between 1.88 and 2.35 times (adjusted ORs).

Similarly, believing that addiction happens after a 'big' delay increased the odds of intentions to take up regular smoking. Increases in the odds of intentions were between 4.93 and 20.99 times (unadjusted) (vs. immediate; and vs. immediate/small delay respectively), and between 4.26 and 17.36 times (adjusted) (vs. immediate; and vs. immediate/small delay respectively).

### **Hypothesis H1 – Smoking without Becoming Addicted**

It was hypothesised (H1) that for never smokers, intentions to try smoking would be positively associated with perceptions that trying smoking was possible without becoming addicted. The two investigations in this section generally support this hypothesis. In the first investigation, it was found that the majority of never smokers who intended to try smoking believed it was possible do so without becoming addicted. Logistic regression models showed that this belief generally increased the likelihood that never smokers would express intentions to try smoking, but not intentions to take up regular smoking.

In the second investigation, intentions to try smoking were investigated in relation to perceptions that addiction happens immediately or after a 'big' delay. Overall, the majority of those not intending to try smoking generally believed that addiction happens immediately (i.e., trying smoking was not possible without becoming addicted). On the other hand, the majority of respondents intending to try smoking typically believed that addiction happens after a 'big' delay. Logistic regression models showed that this belief significantly increased the odds that never smokers would have intentions to try smoking and to take up regular smoking. These data indicate that the 'speed' of addiction is a better predictor of smoking intentions than whether or not trial can occur without addiction.

Overall, findings in this section support the stated hypothesis.

Table 6.34

Perceptions of When Smoking Addiction Happens Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Perceptions of When Smoking Addiction Happens	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
	Immediate	1.00	1.00			1.00	1.00	
Small Delay	0.70	0.64	0.26	0.29 – 1.40	7.41	6.81	0.21	0.33 – 140.30
Big Delay	1.96 <sup>+</sup>	1.88 <sup>+</sup>	0.09	0.90 – 3.93	20.99*	17.36 <sup>+</sup>	0.06	0.92 – 326.92
Immediate/Small Delay	1.00	1.00			1.00	1.00		
Big Delay	2.34	2.35**	0.01	1.24 – 4.44	4.93*	4.26*	0.02	1.24 – 14.64

\* p < .05; \*\* p < .01

### 6.3.3.2 Avoidance strategies

As for primary school respondents, the objective was to explore perceptions in relation to whether smoking addiction could be avoided by: (a) deliberately not enjoying smoking, and (b) deliberately not liking the taste of smoking. Figure 6.34 shows responses to the question ‘do you think you can try smoking without getting addicted?’ if these strategies are adopted.

From Figure 6.34, almost half of respondents did not believe addiction could be avoided by either of the suggested strategies – 43% stated that addiction could not be avoided by deliberately not enjoying smoking and 48% stated that addiction could not be avoided by deliberately not liking the taste of smoking. Approximately one third of respondents believed that the strategies maybe could work (38% not enjoy smoking, 36% not liking the taste) while about one fifth believed that they could (19% not enjoy, 16% not like the taste).

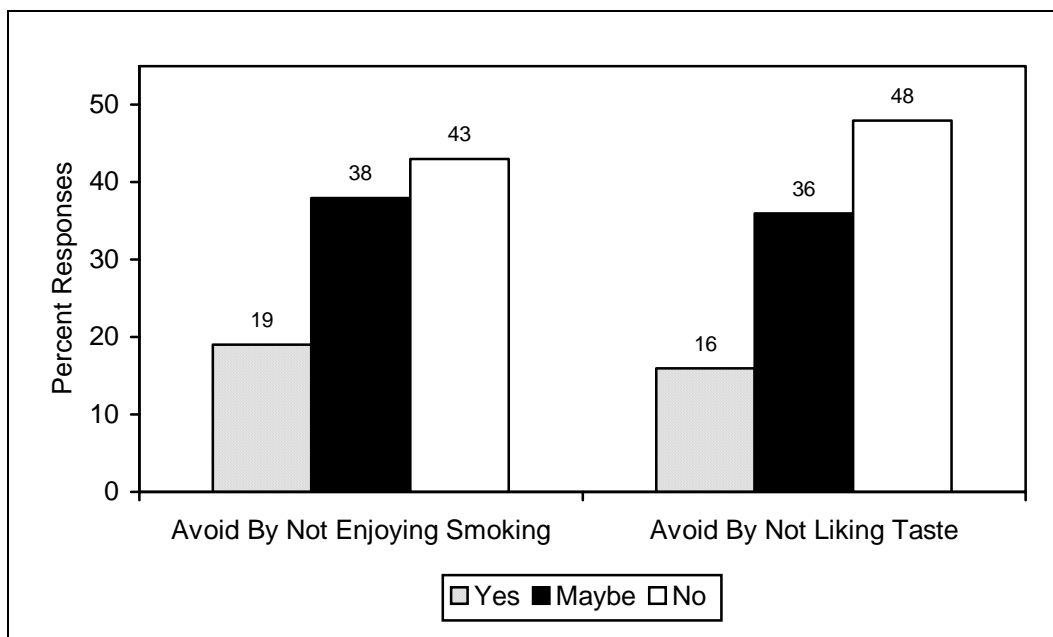


Figure 6.34 – Secondary School Students' Perceptions of Addiction Avoidance Strategies



*Differences by Gender, School Year, School Type and Smoking Status*

There were no significant differences in the distribution of responses by gender (not enjoy:  $\chi^2 = 4.194$ ,  $df = 2$ ,  $p > .05$ ; not like the taste:  $\chi^2 = 1.284$ ,  $df = 2$ ,  $p > .05$ ), school year (not enjoy:  $\chi^2 = 5.489$ ,  $df = 4$ ,  $p > .05$ ; not like the taste:  $\chi^2 = 6.622$ ,  $df = 4$ ,  $p > .05$ ), school type (not enjoy:  $\chi^2 = 5.887$ ,  $df = 2$ ,  $p > .05$ ; not like the taste:  $\chi^2 = 3.904$ ,  $df = 2$ ,  $p > .05$ ) or smoking status (not enjoy:  $\chi^2 = .592$ ,  $df = 4$ ,  $p > .05$ ; not like the taste:  $\chi^2 = 1.785$ ,  $df = 4$ ,  $p > .05$ ).

*Smoking Intentions and perceived efficacies of avoidance strategies*

Logistic regression models show that never smokers who believe addiction can be intentionally avoided were generally more likely to have higher intentions to try smoking (vs. those who do not believe) by deliberately not enjoying smoking but the difference was not significant. In relation to intentions to take up regular smoking, Table 6.35 shows that believing addiction can be avoided by deliberately not enjoying smoking significantly increased the odds for intentions to take up regular smoking ( $p < .05$ ) by between 4 times (SFM) and 4.79 times (adjusted for gender and school year) (vs. not believing in this strategy).

Believing that addiction can be avoided by deliberately not liking the taste of smoking also increased the odds for intentions to take up regular smoking by 1.44 times (SFM) to 1.76 times (adjusted for gender and school year) (vs. not believing in this strategy) but this only approached significance in the SFM.

Overall, increases in the odds of smoking intentions were greater in relation to deliberately not enjoying smoking than deliberately not liking the taste of smoking, but the results for deliberately not enjoying smoking were significant only for taking up regular smoking. Also, results suggest that believing the strategies would help avoid addiction was more salient in relation to intentions for taking up regular smoking than for trying smoking.

Table 6.35

Addiction Avoidance Strategies Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Addiction Avoidance Strategies	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
Deliberately Not Enjoy Smoking								
- No	1.00	1.00			1.00	1.00		
- Yes/Maybe	1.28	1.57	0.14	0.87 – 2.84	4.00 <sup>+</sup>	4.79*	0.03	1.14 – 20.20
Deliberately Not Like The Taste Of Smoking								
- No	1.00	1.00			1.00	1.00		
- Yes/Maybe	0.91	1.10	0.77	0.61 – 1.95	1.44 <sup>+</sup>	1.76	0.33	0.57 – 5.41

\* p < .05; \*\* p < .01; <sup>+</sup> p < .10

### **Hypothesis H3 – Avoiding Addiction**

It was hypothesised (H3) that for never smokers, intentions to try smoking would be positively related to beliefs that addiction can be avoided. Overall, the results reported in this section support the hypothesised association but not strongly. Logistic regression models showed that believing that either of the strategies would help avoid addiction generally increased the odds for intentions both to try and to take up regular smoking, but not significantly.

#### **6.3.3.3 Addiction concerns – Never smokers**

Never smokers were asked to state two main reasons (first main reason, second main reason) why they did not currently smoke. The following list of nine reasons was provided:

- I think cigarettes are too expensive
- I'm too young to buy cigarettes now
- I think smoking is bad for my health
- I don't want to become addicted
- My boyfriend/girlfriend doesn't want me to smoke
- My brothers/sisters don't want me to smoke
- My friends don't want me to smoke
- My parents don't want me to smoke
- My teacher/principal doesn't want me to smoke

Figure 6.35 presents the responses. Overall, 95% selected health as one of two main reasons for not smoking while 64% selected 'don't want to become addicted' as one of their two main reasons. Less than 15% selected costs or parents' disapproval and less than 10% selected being 'too young' as one of their two main reasons. The remaining responses were each selected by less than 5% as either reason.

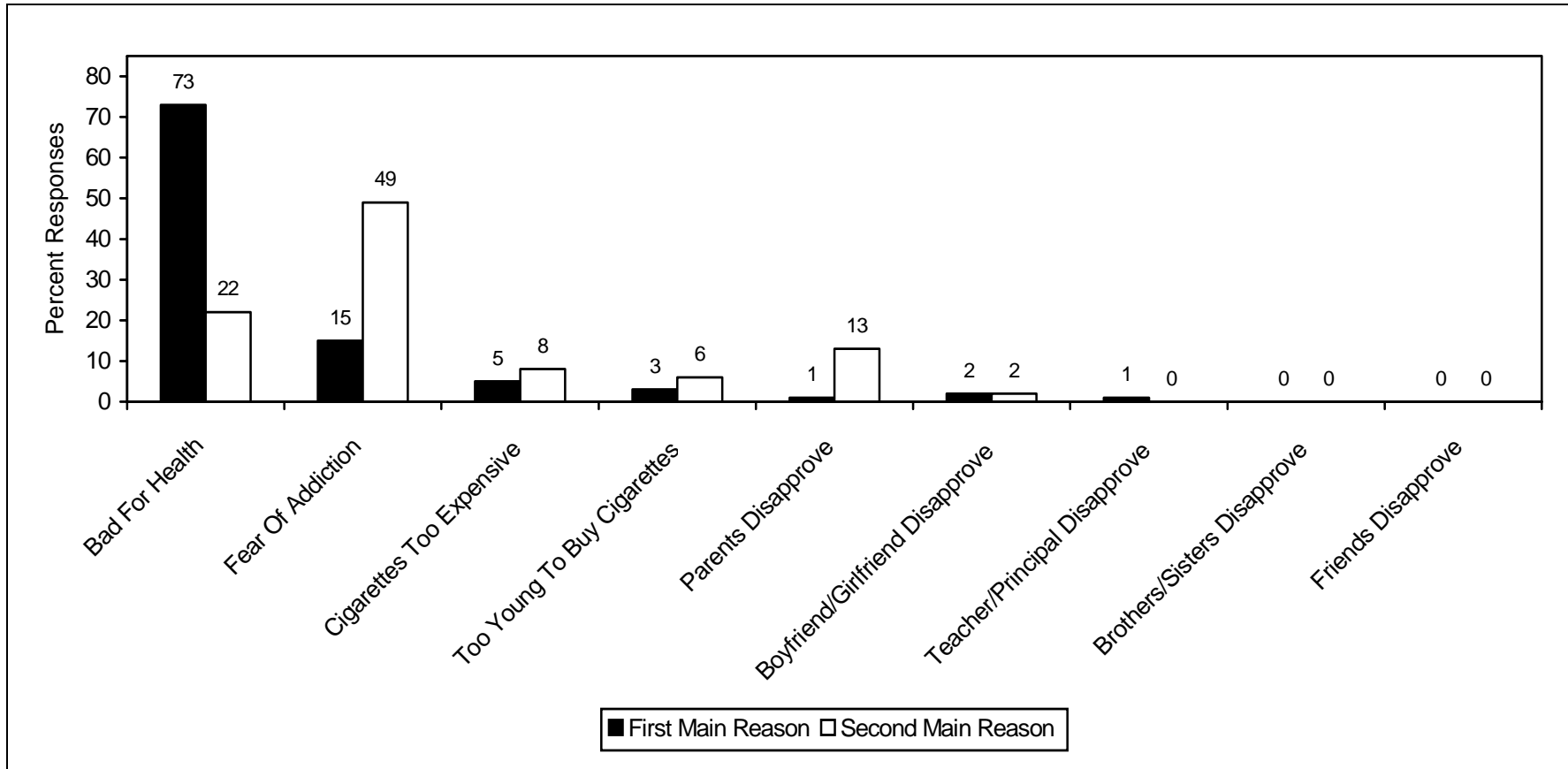


Figure 6.35 – Secondary School Never Smokers: Reasons Why They Don't Smoke

*Differences by Gender, School Year and School Type*

Responses for the disapproval of relevant others (i.e., parents, siblings, boyfriends/girlfriends, friends, teachers and principals) were combined into a single category ('significant others') for analysis. The remaining choices – too young to buy cigarettes, cigarettes too expensive, health concerns and addiction concerns – were left unchanged.

No statistically significant differences were found for first or second main reasons for not smoking by gender (first main reason:  $\chi^2 = 8.460$ ,  $df = 4$ ,  $p > .05$ ; second main reason:  $\chi^2 = 2.247$ ,  $df = 4$ ,  $p > .05$ ).

Similarly, there were no statistically significant differences in the reasons selected by respondents from government or non-government schools (first main reason:  $\chi^2 = 5.073$ ,  $df = 4$ ,  $p > .05$ ; second main reason:  $\chi^2 = 0.695$ ,  $df = 4$ ,  $p > .05$ ).

*Table 6.36*  
*Reasons For Not Smoking x School Year*

1st Main Reason For Not Smoking Now	School Year			
	Year 8 (n = 175)	Year 9 (n = 134)	Year 10 (n = 134)	Total (n = 443)
I Think Cigarettes Are Too Expensive	4	4	6	5
I'm Too Young To Buy Cigarettes Now	1	1	6	2
I Think Smoking Is Bad For My Health	72	74	72	73
I Don't Want To Become Addicted	22	13	9	15
Disapproval of Significant Others	1	8	7	5
Total	100	100	100	100

2nd Main Reason For Not Smoking Now	Year 8 (n = 171)	Year 9 (n = 137)	Year 10 (n = 132)	Total (n = 440)
I Think Cigarettes Are Too Expensive	11	11	9	10
I'm Too Young To Buy Cigarettes Now	6	4	9	6
I Think Smoking Is Bad For My Health	26	18	14	20
I Don't Want To Become Addicted	40	50	49	46
Disapproval of Significant Others	17	17	19	18
Total	100	100	100	100

For school year, Table 6.36 shows that there were significant differences in the overall distribution of responses for first ( $\chi^2 = 30.688$ ,  $df = 8$ ,  $p < .01$ ) but not second ( $\chi^2 = 11.063$ ,  $df = 8$ ,  $p > .05$ ) main reasons. Not wanting to become

addicted as the first main reason declined systematically as school year increased: 22%, 13% and 9% for Year Eight, Nine and Ten respectively. Conversely, for second main reason, selection of health declined systematically by school year (26%, 18% and 14% for Years Eight, Nine and Ten respectively) and not wanting to be addicted increased from 40% in Year Eight to 50% and 49% in Years Nine and Ten respectively.

*Smoking intentions and reasons for not smoking now*

Table 6.37 shows never smokers' intentions to try smoking by their nominated reasons for not smoking (first main reason:  $\chi^2 = 5.523$ ,  $df = 4$ ,  $p > .05$ ; second main reason:  $\chi^2 = 3.970$ ,  $df = 4$ ,  $p > .05$ ). Unlike for primary school data, present results show that the majority of both never smokers with intentions to try and those with intentions not to try smoking selected health or addiction concerns as one of their two main reasons for not smoking now. Of those with no intentions to try smoking, 76% selected health as their first main reason and 23% selected it as their second main reason, while 14% and 49% selected addiction as their respective main reasons. Of those intending to try smoking, 65% and 16% selected health as first and second main reasons, and 16% and 49% selected addiction as their first and second respectively.

Table 6.38 shows never smokers' intentions to take up regular smoking by their nominated reasons for not smoking (first main reason:  $\chi^2 = 31.742$ ,  $df = 4$ ,  $p < .001$ ; second main reason:  $\chi^2 = 18.406$ ,  $df = 4$ ,  $p < .01$ ). Of those with no intentions to smoke, the majority selected either health (76% first and 22% second main reasons) or addiction (15% first and 50% second main reasons) as main reasons for not smoking. On the other hand, the selection of these responses as main reasons was considerably less by those intending to smoke: health – 25% first and 21% second main reasons; addiction – 17% first and 14% second main reasons.

The relationship between nominated reasons for not smoking now and smoking intentions are further investigated using logistic regression analysis. As for

primary school data, two sets of odds ratios were calculated for the above results (SFM and adjusted). Table 6.39 presents odds ratios for the nominated reason 'I don't want to be addicted' contrasted against a reference category consisting of all the other reasons combined ('all other reasons'). The goal of these contrasts was to show the effect of addiction concerns (compared to other stated reasons) on never smokers' intentions to smoke.

Overall, the odds ratios of having intentions to smoke were lower for respondents who nominated 'I don't want to be addicted' (vs. those who nominated all other responses) but only in respect of the second main reason. Additionally, results were only statistically significant for intentions to take up regular smoking ( $p < .05$ ).

#### **Hypothesis H4 – Addiction Concerns**

It was hypothesised (H4) that for never smokers, smoking intentions would be negatively associated with concerns about becoming addicted. In the above sections, nine reasons nominated by never smokers for not smoking now were explored for relationships with intentions to try smoking and intentions to take up regular smoking. Overall, results were consistent with the hypothesis for intentions to take up regular smoking: respondents who nominated 'I don't want to become addicted' were generally more likely not to intend smoking in the future.

Table 6.37

Reasons For Not Smoking x Intentions To Try Smoking

Reasons For Not Smoking Now	Intentions To <u>Try</u> Smoking					
	Yes/Maybe (n = 63)			No (n = 211)		
	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases
I Think Cigarettes Are Too Expensive	6	9	15	5	8	13
I'm Too Young To Buy Cigarettes Now	5	11	16	2	5	7
I Think Smoking Is Bad For My Health	65	16	81	76	23	99
I Don't Want To Become Addicted	16	49	65	14	49	63
Disapproval of Significant Others	8	15	23	3	15	18
Total	100	100	200	100	100	200

Table 6.38

Reasons For Not Smoking x Intentions To Take Up Regular Smoking

Reasons For Not Smoking Now	Intentions To <u>Take Up</u> Regular Smoking					
	Yes/Maybe (n = 63)			No (n = 211)		
	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases
I Think Cigarettes Are Too Expensive	17	7	24	5	8	13
I'm Too Young To Buy Cigarettes Now	16	29	45	2	5	7
I Think Smoking Is Bad For My Health	25	21	46	76	22	88
I Don't Want To Become Addicted	17	14	31	15	50	65
Disapproval of Significant Others	25	29	54	4	15	19
Total	100	100	200	100	100	200



Table 6.39

Reasons for Not Smoking Now Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

1 <sup>st</sup> Main Reason For Not Smoking Now	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	1.06	1.00	0.12	0.44 – 2.28	1.37	2.05	0.35	0.46 – 9.13

2 <sup>nd</sup> Main Reason For Not Smoking Now	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	0.98	0.87	0.64	0.49 – 1.55	0.21*	0.18*	0.02	0.04 – 0.73

\* p < .05; \*\* p < .01

#### 6.3.3.4 Addiction concerns – Current smokers

Current smokers were asked to state two main reasons (first main reason, second main reason) that could make them want to quit smoking. The following list of eight reasons was provided:

- I think cigarettes are too expensive
- I think smoking is bad for my health
- I don't want to become addicted
- My boyfriend/girlfriend doesn't want me to smoke
- My brothers/sisters don't want me to smoke
- My friends don't want me to smoke
- My parents don't want me to smoke
- My teacher/principal doesn't want me to smoke

Figure 6.36 shows that health and addiction concerns were the main reasons selected by current smokers. For health, 35% of respondents selected this as their first main reason while 23% selected it as their second main reason. For addiction, 23% selected this as their first main reason and 27% selected it as their second. Compared to never smokers above (5% first reason, 8% second reason), more current smokers selected cost of cigarettes as main reasons – 17% first main reason, 19% second main reason.

Boyfriend/girlfriend and parental disapproval were selected by 10% and 7% of smokers respectively as first main reasons, and by 9% and 11% respectively as second main reasons. The disapproval of friends, siblings, teachers and principals was each selected by less than 5% as either first or second main reasons.

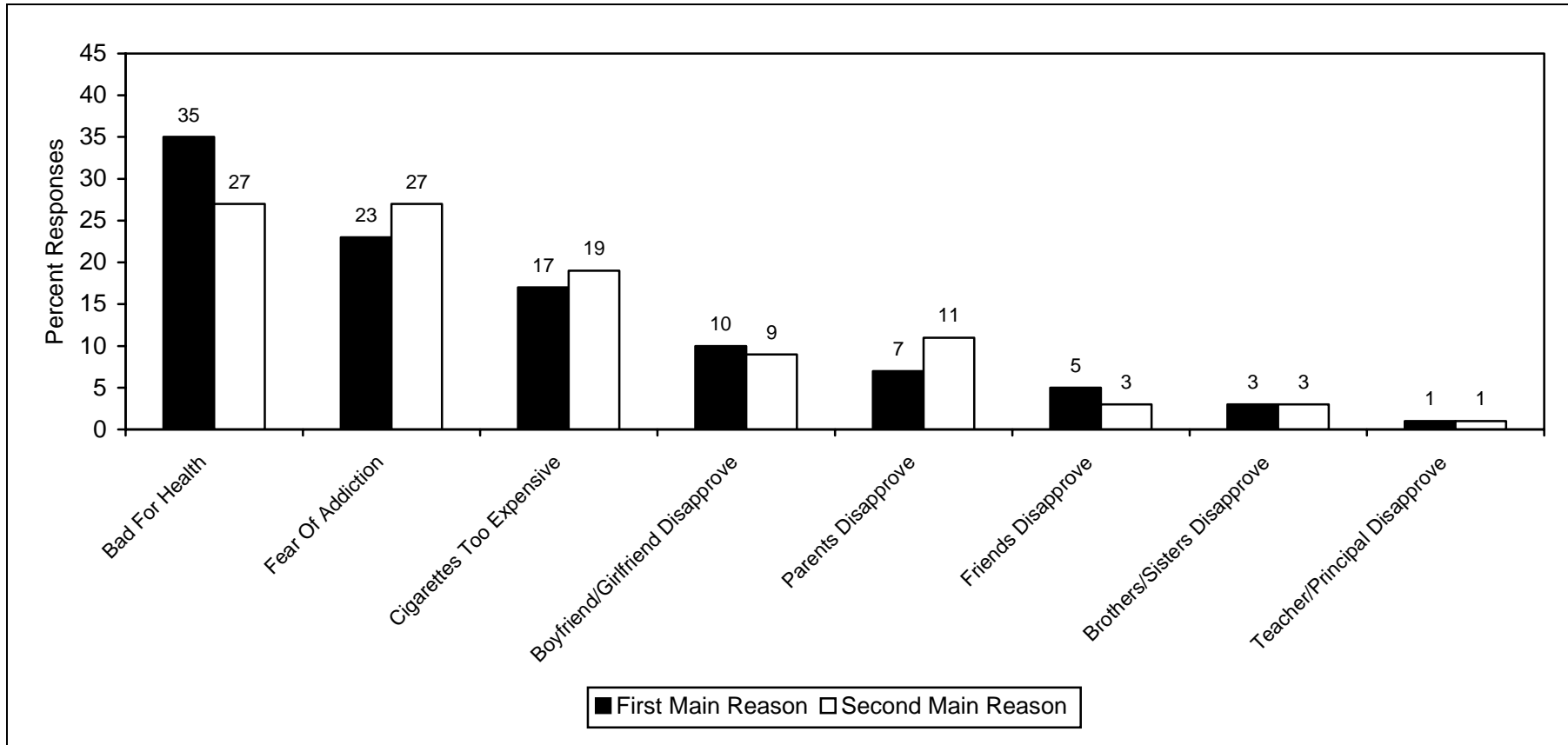


Figure 6.36 – Secondary School Current Smokers: Reasons Why They Would Stop Smoking

### *Differences by Gender and School Type*

Responses for the disapproval of relevant others (i.e., parents, siblings, boyfriends/girlfriends, friends, teachers and principals) were combined into a single category ('significant others') for analysis. The remaining choices – cigarettes too expensive, health concerns and addiction concerns – were left unchanged.

*Table 6.40*  
*Reasons To Stop Smoking x Sex*

1st Main Reason To Stop Smoking	Sex %		
	Boy (n = 38)	Girl (n = 64)	Total (n = 102)
I Think Cigarettes Are Too Expensive	32	9	18
I Think Smoking Is Bad For My Health	21	42	34
I Don't Want To Become Addicted	21	24	23
Disapproval of Significant Others	26	25	25
Total	100	100	100

2nd Main Reason To Stop Smoking	Sex %		
	Boy (n = 38)	Girl (n = 65)	Total (n = 103)
I Think Cigarettes Are Too Expensive	13	22	19
I Think Smoking Is Bad For My Health	21	31	27
I Don't Want To Become Addicted	16	34	27
Disapproval of Significant Others	50	13	27
Total	100	100	100

Table 6.40 shows that more girls than boys selected health (73% vs. 42% respectively) and addiction concerns (58% vs. 37% respectively) in their two main reasons to stop smoking while more boys than girls selected costs (45% vs. 31% respectively) and the disapproval of significant others (76% vs. 38% respectively) in their two main reasons (first main reason:  $\chi^2 = 9.841$ ,  $df = 3$ ,  $p < .05$ ; second main reason:  $\chi^2 = 16.153$ ,  $df = 3$ ,  $p < .01$ ).

For school type, no statistically significant differences were found in main reasons selected by respondents from government or non-government schools (first main reason:  $\chi^2 = 1.075$ ,  $df = 3$ ,  $p > .05$ ; second main reason:  $\chi^2 = 3.922$ ,  $df = 3$ ,  $p > .05$ ).

*Smoking Intentions and reasons to stop smoking*

Table 6.41 shows current smokers' intentions to continue smoking by their nominated reasons for stopping smoking. Chi-square showed that the correspondence between main reasons to stop smoking and intentions to continue smoking was statistically significant for second ( $\chi^2 = 13.279$ ,  $df = 3$ ,  $p < .01$ ) but not first ( $\chi^2 = 4.013$ ,  $df = 3$ ,  $p > .05$ ) main reasons. Generally, not wanting to continue smoking corresponded with greater concerns over becoming addicted: 23% of current smokers intending not to smoke selected addiction as their first, and 44% selected addiction as their second, main reasons. In contrast, 22% and 19% of those with intentions to smoke selected addiction as their first and second main reasons respectively.

Table 6.42 shows current smokers' intentions to still smoke when grown up by their nominated reasons for not smoking (first main reason:  $\chi^2 = 8.128$ ,  $df = 3$ ,  $p < .05$ ; second main reason:  $\chi^2 = 18.074$ ,  $df = 3$ ,  $p < .001$ ). Generally, greater concerns about addiction corresponded with intentions not to smoke when grown up: 48% of current smokers with no intentions to smoke selected 'don't want to be addicted' as their first, and 15% selected addiction as their second, main reasons to stop. In contrast, 21% and 14% of those with intentions to smoke selected addiction as their first and second main reasons respectively.

For both short-term and long-term smoking intentions, the overall selection of health as one of their two main reasons did not differ greatly between current smokers intending to smoke and those not intending to smoke. This contrasts with findings for never smokers where health concerns were more likely to correspond with intentions not to smoke.

Table 6.43 presents odds ratios for the nominated reason 'I don't want to be addicted' contrasted against a reference category consisting of all the other reasons combined ('all other reasons'). As for previous analyses, the goal of these contrasts was to show the effect of addiction concerns (compared to other stated reasons) on intentions to smoke.

Results show that nominating 'I don't want to become addicted' decreased the likelihood that current smokers would have intentions to continue smoking and intentions to still smoke when grown up (vs. nominating all other reasons). For first main reason, results were not statistically significant. However, for second main reason, intentions to continue smoking significantly decreased by unadjusted OR  $1 / 0.31 = 3.23$  times or by adjusted OR  $1 / 0.19 = 5.26$  times, while intentions to still smoke when grown up significant decreased by unadjusted OR  $1 / 0.19 = 5.26$  times or by adjusted OR  $1 / 0.09 = 11.11$  times.

Overall, the above results indicate that concerns about becoming addicted to smoking (versus other concerns examined) decrease the likelihood that current smokers would have intentions to smoke in the short- and long- term. Differences in odds for first and second main reasons can generally be explained by the greater selection of health concerns as a first main reason.

#### **Hypothesis H5 and H6 – Addiction Concerns**

It was hypothesised (H5 and H6) that for current smokers, smoking intentions would be negatively associated with concerns about becoming addicted. Hypothesis H5 related to current smokers' intentions to continue smoking while hypothesis H6 related to intentions to still smoke when grown up.

Results showed that the selection of addiction concerns as main two reasons to stop smoking corresponded with intentions not to continue smoking. Similarly for intentions to still smoke when grown up, the selection of addiction concerns as main reasons to stop smoking corresponded with intentions not to smoke. Although only odds ratios for the selection of second main reason was statistically significant, overall results were consistent with the hypothesis. Both hypotheses are therefore supported.

Table 6.41

Reasons To Stop Smoking x Intentions To Continue Smoking

Reasons Why Current Smokers Would Stop Smoking	Intentions To <u>Continue</u> Smoking					
	%					
	Yes/Maybe (n = 68)			No (n = 34)		
1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	
I Think Cigarettes Are Too Expensive	21	26	47	8	3	11
I Think Smoking Is Bad For My Health	29	30	59	46	21	67
I Don't Want To Become Addicted	22	19	41	23	44	67
Disapproval of Significant Others	28	25	53	23	33	56
Total	100	100	200	100	100	200

Table 6.42

Reasons To Stop Smoking x Intentions To Smoke When Grown Up

Reasons Why Current Smokers Would Stop Smoking	Intentions To Smoke When <u>Grown Up</u>					
	%					
	Yes/Maybe (n = 62)			No (n = 40)		
1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	1 <sup>st</sup> Main Reason	2 <sup>nd</sup> Main Reason	Total Cases	
I Think Cigarettes Are Too Expensive	19	25	44	15	7	22
I Think Smoking Is Bad For My Health	26	35	61	48	15	63
I Don't Want To Become Addicted	21	14	35	25	46	71
Disapproval of Significant Others	34	26	60	12	32	44
Total	100	100	200	100	100	200

Table 6.43

Reasons for Stopping Smoking Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Current Smokers

1 <sup>st</sup> Main Reason For Stopping Smoking	ORs Intentions To Continue Smoking (Base: Intentions <u>Not</u> To Continue Smoking)				ORs Intentions To Still Smoke When Grown Up (Base: Intentions <u>Not</u> To Still Smoke When Grown Up)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	0.94	0.90	0.83	0.33 – 2.44	0.79	0.82	0.68	0.31 – 2.13

2 <sup>nd</sup> Main Reason For Stopping Smoking	ORs Intentions To Continue Smoking (Base: Intentions <u>Not</u> To Continue Smoking)				ORs Intentions To Still Smoke When Grown Up (Base: Intentions <u>Not</u> To Still Smoke When Grown Up)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
All Other Reasons	1.00	1.00			1.00	1.00		
I Don't Want To Become Addicted	0.31*	0.19**	0.01	0.07 – 0.54	0.19**	0.09**	0.01	0.03 – 0.29

\* p < .05; \*\* p < .01



### 6.3.3.5 Addictive Characteristics of Cigarettes

This section presents the odds ratios for smoking intentions relating to perceptions of the addictive characteristics of cigarettes reported in section 6.3.1. Odds ratios (shown in Tables 6.44 and 6.45) were calculated for never smokers' (i) intentions to try smoking and (ii) intentions to take up regular smoking, and for current smokers' (i) intentions to continue smoking and (ii) intentions to still smoke when grown up based on perceptions relating to:

- the addictive strength of cigarettes;
- cigarettes as a top-ranked item for hardest to stop if addicted;
- cigarettes as a top-ranked item for easiest to become addicted to; and
- cigarettes as a top-ranked item for danger of addiction.

Table 6.44 shows that overall, the odds of intentions to smoke decreased for never smokers who rated the addictive strength of cigarettes as 'very strong' (vs. 'very weak + weak + strong'), and who ranked cigarettes as the top item (vs. all other items) in terms of hardest to stop, easiest to become addicted to and most dangerous to be addicted. However, none of the results was statistically significant.

For current smokers, Table 6.45 shows that the odds of intentions to continue smoking were lower for those who ranked cigarettes as the top item (vs. all other items) in terms of ease of addiction. Also, the odds were slightly lower for intentions to smoke when grown up for those who rated cigarettes as 'very strongly' addictive. However, these results were also not statistically significant.

Overall, the non-significance of results in this section indicates that evaluations of the addictive characteristics of cigarettes may not be important predictors of secondary school students' smoking intentions.

Table 6.44

Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Never Smokers

Variable	ORs Intentions To Try Smoking (Base: Intentions <u>Not</u> To Try Smoking)				ORs Intentions To Take Up Regular Smoking (Base: Intentions <u>Not</u> To Take Up Regular Smoking)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
Addictive Strength of Cigarettes								
- Very Weak + Weak + Strong	1.00	1.00			1.00	1.00		
- Very Strong	0.89	0.57	0.16	0.25 – 1.26	0.37 <sup>+</sup>	0.36	0.10	0.10 – 1.23
Top-Ranked for Hardest to Stop								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.78	0.76	0.42	0.39 – 1.48	0.81	0.85	0.80	0.22 – 3.18
Top-Ranked for Easy to be Addicted								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.62	0.73	0.35	0.38 – 1.40	0.34	0.43	0.26	0.10 – 1.89
Top-Ranked for Most Dangerous Addiction								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.89	0.80	0.74	0.21 – 2.98	0.002	0.003	0.81	0.00-3.1E+18

\* p < .05; \*\* p < .01; <sup>+</sup> p < .10

Table 6.45

Addictive Characteristics Logistic Regression Odds Ratio (ORs) For Smoking Intentions – Current Smokers

Variable	ORs Intentions To Continue Smoking (Base: Intentions <u>Not</u> To Continue Smoking)				ORs Intentions To Still Smoke When Grown Up (Base: Intentions <u>Not</u> To Still Smoke When Grown Up)			
	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval	Single Factor Model (SFM)	SFM with Sex & School Year	P Value	Confidence Interval
Addictive Strength of Cigarettes								
- Very Weak + Weak + Strong	1.00	1.00			1.00	1.00		
- Very Strong	1.15	1.01	0.98	0.35 – 2.92	0.81	0.69	0.49	0.24 – 1.98
Top-Ranked for Hardest to Stop								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	1.20	1.09	0.87	0.39 – 3.06	1.40	1.56	0.38	0.58 – 4.18
Top-Ranked for Easy to be Addicted								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	0.57	0.51	0.14	0.21 – 1.24	1.12	1.01	0.99	0.43 – 2.36
Top-Ranked for Most Dangerous Addiction								
- All Other Items Ranked Top	1.00	1.00			1.00	1.00		
- Cigarettes	3.65	4.19	0.22	0.42-41.80	4.77	6.28	0.12	0.63-62.37

\* p < .05; \*\* p < .01

## 6.4 Summary

This chapter provided analyses of secondary school students' conceptualisation of addiction in general and smoking addiction in particular.

In respect of perceptions of addiction in general, this was explored through comparisons of alcohol, drugs, chocolates, fast foods, gambling, sports, soft drinks, televisions and video games (ten items) on the basis of addictiveness (yes/no), strength of addiction (very strong to very weak) and rankings for most difficult to stop when addicted, easiest to be addicted to and most dangerous when addicted items.

For perceptions of smoking addiction, the role of addiction in adult and youth smoking, and beliefs about why and when smoking addiction happens were explored. Also investigated were respondents' perceptions of what it means to be addicted to smoking and perceptions of the consequences of being addicted.

The relationship between intentions to smoke and specific perceptions of smoking addiction was investigated. In particular, intentions to try smoking were examined in relation to perceived opportunities of trying smoking without becoming addicted and the use of avoidance strategies to avoid becoming addicted when trying smoking. Also investigated was the relationship between intentions to smoke and perceptions of addictive characteristics of cigarettes.

The correspondence of addiction concerns with smoking intentions was examined in relation to never smokers' intentions to try smoking and intentions to take up smoking, and current smokers' intentions to continue smoking and intentions to smoke when grown up. Additionally, these intentions were also examined in relation to perceptions of the addictive characteristics of smoking.

In the course of the above explorations, the six stated hypotheses of the present thesis were tested. The first, which explored perceptions of opportunities to smoke

without becoming addicted and their relationship with intentions to try smoking, was supported. Results showed that never smokers' intentions to smoke generally increased in likelihood with beliefs that trying smoking was possible without becoming addicted.

The second hypothesis explored the relative salience of control/losing control for never smokers and current smokers. Findings supported the hypothesis that losing control from being addicted to smoking was more salient for never smokers than for current smokers.

Hypothesis H3 explored beliefs in addiction avoidance strategies and their relationship with intentions to try smoking. Less than one-fifth of never smokers believed that addiction to smoking could be avoided either by: (1) deliberately not enjoying smoking, or (2) deliberately not liking the taste of smoking. Although results were not statistically significant, these beliefs were generally found to correspond with increased odds of intentions to try smoking.

The fourth hypothesis, which explored the relationship between addiction concern and never smokers' (1) intentions to try smoking and (2) intentions to take up smoking, was not strongly supported. However, concerns about becoming addicted corresponded with significant decreases in the odds that never smokers' intended to take up regular smoking.

Hypotheses H5 and H6 explored addiction concerns in relation to current smokers' (1) intentions to continue smoking and (2) intentions to smoke when grown up. Results showed that concerns about becoming addicted to smoking corresponded with significant decreases in current smokers' intentions to continue smoking and intentions to still smoke when grown up.

Discussions (with reference to the literature) dealing with the current findings and those from the previous chapter (primary school analyses) are presented in the next chapter.

## **Chapter SEVEN: DISCUSSION, LIMITATIONS AND IMPLICATIONS**

---

This chapter presents a discussion of major results reported in chapters five and six concerning young people's concepts of the meaning, nature and onset of smoking addiction, and the relationship between specific addiction beliefs and smoking intentions. The discussion draws on the literature reviewed in chapter two, as well as on knowledge from other relevant areas to provide possible explanations for this study's findings. Limitations of the research are also presented. This chapter concludes with implications of the study's findings for health promotion and social marketing practitioners, and suggestions for related future research.

### **7.1 Summary**

The primary objectives of the current study were to explore how young people conceptualised smoking addiction and to determine how various conceptions may be related to intentions to smoke cigarettes. Despite the significant association between smoking and addiction, issues of smoking addiction are not often addressed in research relating to the prevention of youth smoking uptake. As stated in Chapter Two, only one study had reported on 10-11 year old children's views on smoking and addiction (i.e., Rugkasa et al., 2001) and there is a paucity

in the literature on systematic work in relation to young people's addiction-related cognitions. In the present study, primary and secondary school students were hence surveyed:

- to systematically explore perceptions relating to 'what is addiction?', 'how does it happen?', and 'how quickly does it happen?'
- to determine whether concerns about becoming addicted to smoking correlated with lower intentions to try smoking and lower intentions to take up regular smoking for non-smokers (H4);
- to determine whether believing that trying smoking was possible without becoming addicted correlated with higher intentions to try smoking for non-smokers (H1);
- to determine whether believing that addiction can be avoided by deliberately not enjoying smoking or deliberately not liking the taste of smoking correlated with higher intentions to try smoking for non-smokers (H3);
- to determine whether concerns about becoming addicted to smoking correlated with lower intentions to continue smoking and lower intentions to smoke when grown up for current smokers (H5, H6); and,
- to determine whether losing control from being addicted to smoking was more salient for non-smokers than smokers (H2).

Important findings of the present study pertaining to these objectives were:

- that the majority of young people surveyed had well defined perceptions relating to smoking addiction and addiction generally;
- that young people were concerned about becoming addicted to smoking and these concerns related to: (1) lower intentions to try smoking and lower intentions to take up regular smoking for non-smokers (H4) and, (2) lower intentions to continue smoking (H5) and lower intentions to smoke when grown up for smokers (H6);

- that believing it was possible to experiment with smoking without becoming 'hooked' related to higher intentions to try smoking for non-smokers (H1);
- that believing addiction happens immediately related to lower intentions to try smoking while believing that addiction happens after a big delay related to higher intentions to do so for non-smokers (H1);
- that believing addiction can be avoided by deliberately not enjoying smoking or not liking the taste of smoking related to increased intentions to try smoking (H3); and,
- that a significant proportion of young people saw smoking addiction as 'losing control' and this association was more salient for non-smokers than current smokers (H2).

These findings are discussed below:

## **7.2 Perceptions of smoking addiction and addiction in general**

This section discusses the findings relating to how young people think about addiction. The discussion is divided into two parts. The first pertains to how young people perceive addiction generally and incorporates the results of primary and secondary school students' comparisons of the addictive characteristics of items reported in chapters five and six. The second part of the discussion pertains to how young people think about smoking addiction and incorporates the results of students': (1) perceptions on the role of addiction in adult and youth smoking; (2) perceptions of how addiction occurs; and, (3) perceptions of when addiction occurs.



### ***7.2.1 Perceptions of addiction in general***

This section discusses findings relating to young people's perceptions of addiction generally. Qualitative interviews (chapter three) suggested that most children believed addiction to smoking was similar to cravings for chocolates, fast foods and soft drinks, and to the irresistibility of playing video games and watching television. These comparisons raised the question of whether young people perceived addiction as a global (i.e., all-or-nothing) or multi-dimensional construct, and whether they were knowledgeable about different forms of addiction. This was explored by asking primary and secondary school students to compare the addictive characteristics of ten items (alcohol, cigarettes, chocolates, drugs, fast foods, gambling, playing sports, soft drinks, watching television, and playing videogames). Students made five comparisons relating to: (1) the possibility of addiction ('*can people become addicted to [item]?*'); (2) the strength of addiction; (3) the difficulty of stopping if addicted; (4) the ease of becoming addicted; and, (5) the danger if addicted.

Results showed that the items were judged as differently addicting. For example, the majority of respondents thought that people could not be addicted to playing sports. Items such as alcohol, cigarettes, chocolates, drugs and gambling were more frequently believed to be addictive than items such as fast foods, soft drinks, watching television and playing video games. For the different 'addictions', some were seen as stronger than others; some were seen to occur more easily; some were seen as harder to manage or control; and, some were seen to be more dangerous. Thus, alcohol, cigarettes, drugs and gambling were seen as 'very strong' addictions compared to other items which were rated as 'strong', 'weak' or 'very weak'. These four items were consistently ranked as the top items overall for being hard to stop, easy to become addicted to and most dangerous to be addicted to. Amongst the top-ranked items, cigarettes were seen as the easiest to become addicted to, drugs as the most dangerous, and both cigarettes and drugs as equally the hardest to stop when addicted. Alcohol generally ranked behind cigarettes and drugs on the measures tested, while gambling ranked behind alcohol.

There were some interesting similarities and differences in young people's perceptions of smoking addiction that appeared to relate to smoking status. For instance, current smokers and non-smokers did not differ significantly in their perceptions that smoking cigarettes was addictive or that the strength of this addiction was very strong. Likewise, both groups did not differ significantly in their ranking of cigarette smoking as the top most easily addicting item or the top most difficult to stop item. However, these similarities in perceptions did not extend to beliefs concerning the danger of smoking addiction which current smokers were less likely than non-smokers to agree was in the top three of most dangerous addictions. One explanation for this difference may be that smokers are in denial. Chapman et al. (1993) described this denial as a manifestation of cognitive dissonance-reduction strategy which helps smokers reduce internal tensions between beliefs (e.g., that smoking addiction is dangerous) and behaviour (i.e., smoking).

Generally, respondents' subjective comparisons of item addictiveness rather than the 'factual' accuracy of the above results were of primary concern in this study. Brigham (1998) argued that the scientific community has no adequate or consistent definition of addiction – although specific criteria do exist for formal identification and research purposes, these codifications are not universally accepted nor consistently applied. Addiction originally defined a pattern of behaviour that included compulsive use, physical dependency and tolerance associated with the chronic use of opiates (e.g., morphine and heroin) but with different substances being increasingly abused (e.g., hallucinogens, amphetamines, alcohol, tobacco, etc), the definition of addiction expanded to include any “maladaptive” drug use that is “chronic, relapsing and persistent” (Henningfield, Moolchan, & Zeller, 2003, p.i14). Broadly, addiction may be either a physical or psychic state (or both) and in recent times, has further expanded to encompass any involving action or activity (Peele, 2000). Thus, gambling, working, exercising, compulsive shopping, over-eating and sex obsessions are recognised as addictions (Christen & Christen, 1994); so are listening to music, watching television, engaging in religion (Becker & Murphy, 1988), collecting

perfumes, lipsticks, eye shadow and other cosmetics (Herrnstein & Prelec, 1992) and recently, using the internet (Garth, 2005). Other compulsive behaviours such as hand washing, counting holes in ceiling tiles and cleaning doorknobs, although not addictions per se, are also often considered in terms of addictions or addictive behaviours (Brigham, 1998).

Given this breadth of addictive possibilities, each of the ten items assessed in this study was possibly addictive. As stated above however, the purpose of this study was to explore how young people think about addiction and overall, investigations showed that addiction is not an all-or-nothing concept for young people. The different comparisons explored suggest that young people have clear and differentiated beliefs in relation to a broad range of addictions. As far as can be ascertained, this is the first study to demonstrate young people's concepts of addiction to this degree and represents an important contribution to knowledge.

### ***7.2.2 Perceptions of the nature of smoking addiction***

This second section discusses the findings relating to how young people think about smoking addiction. This discussion covers three aspects of smoking addiction: (1) perceptions on the role of addiction in adult and youth smoking; (2) perceptions of how addiction occurs; and, (3) perceptions of when addiction occurs.

#### *(1) The role of addiction in adult and youth smoking*

The majority of respondents in this study saw addiction as an important factor in adult but not youth smoking. For example, more than 50% of primary and almost 70% of secondary school students believed that the main reason adults smoked cigarettes was because they were addicted. By comparison, less than 5% believed that the same was true for youth smokers who were seen instead, as motivated by attempts to 'look cool'. Corresponding with these views, the majority of respondents were less likely to believe young people and more likely to believe adults who claim to be addicted. These results were influenced, to some extent, by

whether respondents themselves smoked cigarettes. For example, current smokers were more likely than non-smokers to believe that young people smoke because of addiction. They were also more likely to believe that youth smokers can be addicted. On the whole however, the majority of smokers (as with non-smokers) associated addiction with adult smoking while youth smoking was associated with attempts to 'look cool'.

The present results are contrasted with Rugkasa et al.'s (2001) study, which found that while addiction was perceived by children (10 year-olds) to play a major role in explaining why adults smoke cigarettes, it had only secondary significance in relation to youth smoking. Rugkasa et al. (2001) attributed this to qualitative differences in the way children perceive adult and youth smoking. In the eyes of the child, smoking is a mechanism by which adults handle "stress, depression and nervousness" (Rugkasa et al., 2001, p.599). This creates the perception that adults "need" to rely on cigarettes to "cope with life" and to "remain calm and in a good mood" (Rugkasa et al., 2001, p.599). The 'need' to smoke suggests to children that adults are not in control of their smoking which coincides with ideas of how children define addiction and forms the basis on which associations between addiction and adult smoking are made.

On the other hand, children see youth smoking as a means of negotiating social status. As discussed in chapter two, youth smoking is perceived as behaviour actively engaged in to improve a child's social status, to gain membership into social groups and to maintain established social relations (Rugkasa et al., 2001). In contrast to adult smoking, youth smoking is therefore seen as volitional and under control. This perception, which does not coincide with children's ideas of addiction, forms the basis by which children associate youth smoking with 'image creation'. Overall, these qualitative differences help explain why respondents in this study overwhelmingly associated addiction with adult but not youth smoking, and associated 'looking cool' (image concerns) with youth but not adult smoking.

*(2) Why do people become addicted?*

Almost 80% of primary school and almost 90% of secondary school students thought that addiction was caused by a substance or substances contained in cigarettes. Overall, 30% of primary and over 50% of secondary school students identified the addiction-causing substance as nicotine. A substantial proportion of respondents specified 'drugs' (39% primary and 27% secondary school students) and 'chemicals and poisons' (11% primary and 9% secondary school students) in cigarettes as the main cause of addiction. Hedonic reasons were thought to cause addiction by 12% of primary and 8% of secondary school students. Specifically, addiction was thought to happen because smokers liked the taste of cigarettes (4% primary and 3% secondary students) and because they enjoyed smoking (8% primary and 5% secondary). A small percentage (9% primary and 3% secondary) thought that the main cause of addiction was behavioural, that is, from smokers getting used to smoking.

Broadly, these results suggest that respondents were knowledgeable about some aspects of smoking addiction. For example, the majority recognised that smoking addiction was primarily substance-induced rather than determined by hedonic (liking, enjoying) or behavioural (getting used to) factors. In addition, a considerable proportion of all respondents were able to (correctly) specify the substance in cigarettes (i.e., nicotine) that caused addiction.

Generally, much of the knowledge that young people have in relation to addiction comes from personal observations of adult smokers, from the media, from health promotion messages targeted at addiction in adults and from youth anti-smoking messages designed to foster negative attitudes toward smoking (Rugkasa et al., 2001). It is unlikely therefore, that students who selected a response other than 'nicotine' were entirely uninformed about the causes of smoking addiction. In this study, respondents who did not select 'nicotine' (71% of primary and 47% of secondary students) had possibly misinterpreted or conflated smoking-related information from different sources (Rugkasa et al., 2001).

For example, 50% of primary and almost 40% of secondary school students selected 'drugs' and 'chemicals and poisons' in cigarettes as causes of addiction. These responses are possibly influenced by the 'What's In A Cigarette?' message used widely in Australia to persuade adults smokers to quit smoking, and to dissuade young people from taking up smoking – see for example: Quit National Tobacco campaign (Population Health Division, Australian Government Department of Health and Ageing); Information on Cigarette Smoking (National Heart Foundation Australia); Youth Health: Information on Smoking (The Australian Medical Association); 'What's in a cigarette' (Smarter Than Smoking WA, Quit SA and Quit Victoria). The message's main idea is that cigarettes and cigarette smoke contain thousands of 'toxic substances' including tar, nicotine, carbon monoxide, hydrogen cyanide, methane, benzene, metals, radioactive compounds and pesticides. In the present study, it is likely that students selected 'drugs', 'chemicals and poisons' as a result of message recall of the 'what's in a cigarette' campaign.

Two findings relating to the selection of hedonic causes were of particular interest even though the proportion of students involved was relatively low. First, more younger than older respondents thought addiction was caused by smokers either enjoying smoking or liking the taste of cigarettes (12% primary and 8% secondary school students). Second, current smokers compared to non-smokers were more likely also to select 'enjoying' or 'liking' (primary school: 21% smokers vs. 11% non-smokers; secondary school: 11% smokers vs. 7% non-smokers). A possible explanation for the first difference (i.e., more younger than older respondents selected 'liking' or 'enjoying') may be that pleasure is an important determinant of choice for children. According to child development theory, this study's primary school students can be expected to be in the 'concrete operational stage' of development (Kail, 1998). A relevant characteristic of children in this stage is that stimulus-boundedness (the dependence on concrete sensory perceptions) is an important aspect in decision-making (Craig, 1989). On the other hand, this study's secondary school students can be expected to be in the 'formal operations stage'

of development where sensory experiences (e.g., likes/dislikes and enjoyment) are less important than conceptual ones in thinking tasks (Craig, 1989).

The second difference stated above (i.e., more smokers than non-smokers selected 'liking' or 'enjoying') can be related to literature which shows that youth smokers typically have more positive attitudes than youth non-smokers toward smoking. For example, more smokers than non-smokers believe that smoking has utility in helping young people socialise, helping smokers look 'cool', and helping people deal with stress (Ausems, Mesters, van Breukelen, & de Vries, 2003; Buller et al., 2003; Gordon, 1986; Peters, Hedley, Lam, Betson, & Wong, 1997). Youth smokers are also more likely than youth non-smokers to describe the smoking experience as enjoyable or pleasurable (Ausems et al., 2003; Bewley & Bland, 1977; Jarvis, Wardle, Waller, & Owen, 2003; Murray & Cracknell, 1980; Salber, Welsh, & Taylor, 1963). Differences in attitudes toward smoking may therefore explain why more smokers than non-smokers selected 'liking' or 'enjoying' in this study.

### *(3) When do people get addicted?*

Approximately 50% of primary and 60% of secondary school students thought addiction occurred by smoking all the time. About a quarter of all students believed that addiction occurred by smoking sometimes, while about 20% of primary and 15% of secondary students thought that a single attempt at smoking would cause people to get hooked. Overall, these perceptions were related to the smoking status of respondents. For example, non-smokers were more likely than current smokers to believe that addiction could happen from smoking just once (primary students: 22% non-smokers vs. 11% smokers; secondary students: 22% non-smokers vs. 4% smokers). On the other hand, smokers were more likely than non-smokers to believe that addiction happens from smoking persistently or all the time (secondary students: 74% smokers vs. 51% non-smokers).

Two possible explanations can account for differences between smokers and non-smokers. First, responses of current smokers may reflect personal smoking

experiences. Second, smokers may have a desire to reduce personal feelings of vulnerability by denying that addiction can happen immediately, or after smoking only a few cigarettes/smoking a few times. This is similar to Chapman et al.'s (1993) suggestion of a cognitive dissonance-reduction strategy which was raised previously.

Issues of when addiction happens are revisited below where addiction onset is discussed in relation to smoking intentions.

## **7.3 Smoking addiction and intentions to smoke**

This section discusses the findings concerning intentions to smoke cigarettes and what young people think about addiction to smoking. The discussion is divided into two main parts. First, smoking intentions are discussed in relation to young people's general concerns about becoming addicted to smoking. In the second part, non-smoker' intentions to try smoking are discussed in relation to perceived opportunities to try smoking without becoming addicted.

### ***7.3.1 Concerns about becoming addicted to smoking***

Young people accept that the dangers of becoming addicted to smoking equally apply to both adult and youth smokers. This is even though most young people generally associate addiction with adult but not youth smoking. As a result, non-smokers and current smokers in this study were personally concerned about becoming addicted to smoking. These concerns were especially highlighted in associations with smoking intentions for both smokers and non-smokers. For example, smokers who did not intend to continue smoking and those who did not intend to become lifelong smokers were more likely to state that they did not want to become addicted (compared to those with intentions to smoke). Similarly, non-smokers who did not intend to try smoking and those who did not intend to take



up regular smoking were more likely to state that they also did not want to become addicted (compared to those with intentions to smoke).

Although research into the relationship between addiction and young people's smoking intentions has not been extensive, a small number of studies have reported findings that correspond to the present results. For example, Cartwright and Thomson's (1960) early investigation of 11 to 16 year old schoolchildren's attitudes toward smoking reported that young people cited 'fear of addiction' as one reason why they hoped that they would not smoke after leaving school. Similarly, Poulton (1973) studied the attitudes of 11 to 16 year old school girls and found that 'fear of becoming addicted' was one of the main reasons nominated by non-smokers for not smoking. In a more recent investigation of 13 to 18 year old school students' attitudes toward smoking, Piko (2001) found that antismoking attitudinal items, including the item 'I don't want to be addicted', strongly correlated with increases in non-smokers' intentions not to smoke and with smokers' intentions to reduce the frequency of their cigarette use. However, the addiction item was incorporated and analysed as a factor group rather than an individual element and hence, received no separate consideration.

In each of the above three studies, addiction was not the primary item of interest and therefore received only passing comment. In their limited ways however, these studies indicate that young people generally have concerns or 'fears' about becoming addicted. Together with the present results, young people's concern about becoming addicted appears to have a protective effect in relation to smoking. This is likely because the "fear of losing control" is a "powerful element" in young people not wanting to become addicted (de Meyrick, 2001, p.106). This view has some empirical support in the literature. Specifically, Winge's (2003) trial of a smoking prevention program to change young students' (11 year olds) attitudes toward cigarette smoking showed that intentions to experiment with cigarettes fell on measures of 'loss of control'. These measures pertained to components in the trial which were designed to give students "a sense of what it feels like to lose control of their lives" through simulations of the

smoking regiment of an addicted smoker (Winge, 2003, p.92). In the overall program, loss of control was the only component to effect significant changes in students' intentions to smoke cigarettes. Interestingly however, the researcher did not recognise this as a significant find and described the outcome as being of "recondite" or obscure importance (Winge, 2003, p.96). Despite this, Winge's study offers a possible explanation in relation to why young people have concerns about becoming addicted to smoking – namely, the fear of losing control. This issue of 'control' is discussed further in a later section to follow.

Although research evidence is sparse, it is likely that the protective effect highlighted in the present study extends beyond cigarette smoking to broadly encompass other addictive substances. This possibility is highlighted by Kandel et al.'s (1978) longitudinal investigation of secondary school students' drug use. In their study, the researchers found that subsequent use of marijuana (at time T<sub>2</sub>) inversely correlated with students' initial 'fear of psychological dependence' and 'fear of addiction' (measured at time T<sub>1</sub>). Intuitively, it is reasonable to expect that young people concerned about smoking addiction would be similarly concerned about addiction to other drugs and substances. However, further investigation is needed to explore the extent of this hypothesis and implications for future research are discussed in a later section to follow.

### ***7.3.2 Perceived opportunities to smoke without becoming addicted***

This section continues the discussion of findings concerning intentions to smoke cigarettes and what young people think about addiction to smoking. The focus in this section is on specific relationships between non-smokers' intentions to try smoking and perceptions of opportunities to smoke without becoming addicted.

Addiction is a known risk of smoking and in this study, almost half of all non-smokers said they did not smoke because of addiction concerns ('I don't want to be addicted'). Even so, young people have a general tendency "to try and get away with a little bit of smoking" where possible (Slovic, 2000, p.264). Three

different findings in the present study showed this tendency in non-smokers. The first finding pertained to assessments of whether trying smoking would lead to addiction. Results showed that the majority of non-smokers with intentions to try smoking believed generally that trying smoking would not cause addiction. The second finding pertained to assessments of when addiction was thought to occur (addiction onset). Results showed that the majority of non-smokers intending to try smoking did not believe addiction happened immediately but rather, that there was a 'big delay' before people become 'hooked'. Finally, the third finding pertained to assessments of whether addiction could be strategically circumvented. Results showed that, especially for the younger respondents, the majority of those intending to try smoking believed they could avoid becoming addicted through strategies such as deliberately not letting themselves 'like the taste' of cigarettes or not letting themselves 'enjoy' smoking.

Clearly, the relationships above between smoking intentions and perceived opportunities to smoke without becoming addicted reflect assessments of personal addiction risks. Virgili et al. (1991) considered risk assessments to be an important variable in the understanding of smoking behaviour. Generally, responses to risk (i.e., risk decisions) are conditioned by perceptions of whether a risk is known and whether exposure to that risk is controllable (Slovic, 2000). Where a risk is thought to be known and controllable, this generates feelings of confidence that can lead to increased risk-taking and/or decreased risk-protective behaviours (Slovic, Fischhoff, & Lichtenstein, 1978). On the other hand, where a risk is an unknown factor, feelings of control become replaced by feelings of vulnerability which generate increased risk-protective and/or decreased risk-taking behaviours (van der Pligt, 1998). Results in the present can thus be explained in terms of young people's perceived confidence in managing their exposure to addiction.

Another possible explanation can be offered specifically in relation to the finding that intentions to try smoking corresponded with beliefs that addiction did not happen immediately but rather, that onset occurred after a 'big delay'. Generally,

risk assessments are subject to biases and distortions. In particular, time delays appear to affect the value that individuals subjectively assign to negative outcomes (Mischel, Grusec, & Masters, 1969). Weinstein (1988) explained that people assign more importance to aversive events that are thought to occur imminently compared to those that are thought to transpire in the longer-term. Immediacy creates greater importance since near-term consequences are more apparent or more easily visualised (Baumeister & Scher, 1988). In contrast, delayed events lose importance since perceived severity of consequences are generally underestimated the further away in time in which they occur and are therefore subjectively less aversive the longer they are delayed (Ainslie, 1975; Kok, 1983). Evans et al. (1978, p.127) labelled this situation where only immediate or near-term consequences appear to be relevant a “time perspective problem”. This problem is especially heightened in young people who, relative to adults, are typically more affected by immediate rather than future consequences and find it difficult to relate to negative consequences which occur belatedly (Evans et al., 1978; Fox, Krugman, Fletcher, & Fischer, 1998). In the present study therefore, although non-smokers were generally concerned about becoming addicted to smoking and were inhibited in their intentions to try smoking, these concerns were mitigated by beliefs that addiction did not happen immediately and that addiction onset was a future consequence.

### ***7.3.3 Loss of control***

Interviews in the qualitative phase of this study showed that ‘loss of control’ emerged frequently in young people’s discourse on addiction. The emphasis that interviewees placed on ‘losing control’ or ‘having no control’ suggested that this was an important issue that young people associated with smoking addiction. ‘Control’ was therefore explored in the main survey study in relation to how young people defined being addicted to smoking and what they perceived was the worst consequence of this addiction. It was also hypothesised that losing or having no control would be more salient for non-smokers than current smokers. The discussion in this section considers, first, the association between smoking

addiction and the issue of having no control, and second, the relative salience of the control issue for smokers and non-smokers.

*(1) Smoking addiction and 'having no control'*

Results show that 43% of primary and 22% of secondary school students defined addiction to smoking as 'having no control', and 48% of primary and 37% of secondary students nominated 'loss of control' as the single worst consequence of being addicted to smoking. 'Having no control' was the modal response for primary school students in relation to what it means to be addicted. It was also the modal response for both primary and secondary school students in relation to what the worst consequence of addiction is.

The primary feature of smoking addiction is the characteristic loss of control experienced by smokers in the consumption of cigarettes (US Department of Health and Human Services, 1988) and the above results clearly highlight this association in the minds of young people. Generally, the concept of 'control' refers to "feelings of volition that accompany any act" (Ryan & Deci, 2000, p.x9). Winge (2003, p.92) explained that people "want to have direct experience with the outcomes of one's own actions and choices" rather than feel that they are "merely... a pawn of external forces". These feelings translate into a desire for control or synonymously, a desire for self-determination (autonomy) that Ryan and Deci (2000) stated was an innate psychological need of all people. Autonomous behaviour undertaken with a full sense of choice (i.e., perceived to be completely within the individual's control) expresses "one's true sense of self" (Williams et al., 2002, p.513) and is an essential element in facilitating "personal growth, social development and personal well-being" (Ryan & Deci, 2000, p.69). In contrast, a loss of control or autonomy suppresses and subjects the 'self' to coercive pressures from external or intrapsychic forces (Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Rodin, Ryan, Grolnick, & Deci, 1998). These innate desires for self-determination may be high in young people who are generally trying to assert their individuation as part of the transition into

adulthood. This would account for the salience of the ‘control’ response especially in relation to consequences of being addicted.

*(2) Salience of control for smokers and non-smokers*

This second part of the discussion concerns the hypothesis that losing or having no control is more salient for non-smokers than smokers. Results showed that:

- 44% of primary school non-smokers vs. 35% of primary school smokers defined addiction as ‘having no control’;
- 26% of secondary school non-smokers vs. 18% of secondary school smokers defined addiction as ‘having no control’;
- 65% of primary school non-smokers vs. 32% of primary school smokers nominated ‘having no control’ as the single worst consequence of being addicted; and,
- 53% of secondary school non-smokers vs. 35% of secondary school smokers nominated ‘having no control’ as the single worst consequence of being addicted.

As predicted, non-smokers in this study more frequently selected ‘having no control’ as a response than did current smokers. This was taken as a reflection of the greater salience or importance of ‘control’ for non-smokers, and as support for the stated hypothesis.

One possible explanation for this outcome is that the questions tapped differences in personality traits between smokers and non-smokers. As discussed in the section above, people possess an innate need to be ‘in control’ of their own actions and choices (i.e., to be autonomous). However, the level or strength of this need within and between individuals is generally a matter of degree (Ryan, Plant, & O'Malley, 1995). Ryan and Deci (2000) suggested that there is a continuum of relative autonomy and individuals situate themselves somewhere between the extremes of totally autonomous and totally regulated states. People’s relative

position on this continuum is determined by their personality differences, and as a sign of a person's natural tendency towards autonomy, "choice and individual initiative" concerns will be more salient for those with a greater control orientation (Williams et al., 1996, p.117). Thus, the present results suggest that non-smokers (compared to smokers) may have a greater personality orientation towards autonomy/control.

To our knowledge, this association between an autonomy orientation and smoking status has not been explicitly shown before. However, support for such a relationship can be inferred from the literature. For example, individuals with high self-esteem and ego development (discussed in chapter two as characteristics of non-smokers) generally show a higher autonomy/control orientation than individuals low on these psychological dimensions (discussed in chapter two as characteristics of smokers) (Williams et al., 1996). There are two reasons why identifying autonomy orientation as a defining personality trait of non-smokers is important. First, even though the period of adolescence is generally synonymous with rapid physical and cognitive developmental changes (Sussman, Dent, Stacy, Burton, & Flay, 1995), personality traits actually show a considerable degree of constancy over time (Brook, Whiteman, Gordon, & Cohen, 1986). Hence, psychological assessments made early in childhood which identify distinguishing personality traits can be applied to predict substance use and other health compromising behaviours into adolescence and adulthood (Brook, Gordon, & Whiteman, 1985). Second, Lynch (1995, p.96) noted that there is a "disproportionate emphasis of environmental and social factors" to explain youth smoking behaviour. He argued instead that a focus on the psychology of adolescent smoking (i.e., on intrinsic rather than extrinsic forces) is more appropriate since decisions about smoking are usually made from "an individual psychological viewpoint" and not on the basis of "information accumulation or simple social pressure" (Lynch, 1995, p.98). Thus from a conceptual viewpoint, differences in the relative autonomy or control traits of smokers and non-smokers (as suggested in this study) may provide a useful psychological focus for studying

the determinants of smoking behaviour. This point is revisited in the discussion on implications for future research.

## **7.4 Limitations of the study**

Some limitations of research relating to issues of methodology should be recognised in this study. First, the presentation of results and findings in the main (survey) study should only be taken as descriptions of relationships between key variables of interest. The cross-sectional design employed meant that only indications of association (but not causation) could be provided from the data.

Second, the primary objectives of the present research were stated as exploratory and therefore, non-probability sampling methods were deemed appropriate for recruiting students in the two phases of study. In combination with resource limitations, which restricted the research to students in the metropolitan Perth area, the generalisability of this study's findings should be further investigated using randomly selected representative samples of students from a broader geographic base.

Third, in studies (such as the present work) where sampling units are specified at a group level (e.g., schools, hospitals, communities, etc) but where analyses are conducted at an individual level (e.g., students, patients, residents, etc), a 'clustering effect' may produce variability in the data arising from between-group (rather than between-individual) differences (Hutchison, 2004; Simpson, Klar, & Donner, 1995). This can result in a loss of statistical power and a requirement to increase the overall sample size (Bland, 2003). In the present study, this was recognised and possible between-group differences were tested by explicitly modelling 'schools' as a predictor in logistic regression models. No statistically significant between-school differences were found which indicated that the 'clustering effect' was not an issue for primary school data. Some differences, however, were found for two of the three secondary schools surveyed in relation to 'never smokers' intentions to try smoke. Although the differences were not



persistent, given the exploratory nature and the use of non-probability methods in this study, the possibility of a clustering effect should be recognised as a limitation in this study.

## **7.5 Implications of the study and future research**

This section discusses the implications of the present research. The discussion is presented in two parts. The first pertains to practical implications for health promotion practitioners, and the second considers the direction of future tobacco control research for researchers.

### ***7.5.1 Implications for practitioners***

It is claimed that emphasising the health consequences of smoking in anti-smoking communications targeted at young people is generally ineffective (de Meyrick, 2001). This is because consequences such as heart disease, stroke and lung cancer (three diseases that cause the most deaths in Australia – (HealthInSite, 2005)) are long-term or distal problems which occur only after many years of persistent and heavy smoking. In recent times, youth strategies have tried focusing on more short-term or imminent consequences such as bad smells, bad breath, yellowing teeth and loss of fitness to increase the relevance of anti-smoking messages for young people. However, evaluations of these strategies have generally been disappointing (Goldman & Glantz, 1998; Lantz et al., 2000). This is because the consequences, although more imminent, are typically perceived as low in severity or seriousness and tend to evoke only low levels of fear which are unlikely to be persuasive or effective (de Meyrick, 2001).

Addiction to smoking, which was the focus of this study, is both an imminent and a severe or serious threat which can be given consideration for use in youth primary prevention interventions. First, in relation to threat imminence, recent

findings suggest that in youth populations, symptoms of addiction can appear during sporadic and irregular experimentations with cigarettes and before a regular pattern of smoking is established. For example, DiFranza et al. (2000) found that some young people (labelled the 'rapid onset' group) reported feeling symptoms of addiction (e.g., feeling irritable, unable to refrain from smoking even where it is not allowed, feeling nervous, restless or anxious, etc) within days of first smoking. In addition, DiFranza et al. (2002) found that for young people, the occurrence of addiction symptoms generally did not relate to any minimum frequency of smoking or amount of use. In some cases, symptoms of addiction could occur after only a few exposures to smoking. For example, in DiFranza et al.'s (2002) sample, 50% of young people who smoked less than one cigarette per week reported feeling symptoms of addiction while 80% of those who smoked less than one cigarette per day reported feeling similar symptoms. Although these results should be cautiously accepted given doubts about whether the symptoms reported by inexperienced occasional smokers in the above studies reflect the same symptoms experienced by 'real addicts' (Borland, 2000), nevertheless, in relation to threat imminence, addiction "is not a remote statistical probability, it is an immediate promise" (de Meyrick, 2001, p.106).

Second, in relation to threat severity, a letter in the *New Scientist* from a 17 year old youth explicitly articulates the seriousness of the addiction threat for young people: "teenagers start smoking for many reasons – some as an act of rebellion, some as a response to peer pressure – but the main reason that non-smoking teenagers do not smoke is out of fear of addiction" (Davidson, 2002). De Meyrick (2001, p.106) explained that "at a time when many adolescents are struggling to establish their autonomy, cigarette addiction will involve surrendering control of a significant part of their behaviour" and represents a "powerful reason" for young people to avoid smoking and thus avoid addiction. Similarly, a qualitative study on young women and smoking concluded that the fear of addiction acted as a "substantial deterrent" for the non-smokers whose wish to be seen as independent young women conflicted strongly with the notion of being dependent on a substance (Health Canada, 2000, p.4).

In recent anti-smoking campaigns in Australia, the strategy to motivate adult to change their attitudes about smoking has turned to emphasising the imminence and severity of smoking consequences (Hill & Carroll, 2003). Addiction satisfies the criteria of imminence and severity, and it may therefore be useful for health promoters to include addiction education for young people as part of a strategy to reduce the overall prevalence of smoking. This is possible in two ways. First, addiction education can be used to persuade youth non-smokers not to experiment with smoking. This position is supported by present results which show that non-smokers' intentions not to try smoking are related to concerns about becoming addicted. Second, addiction education may also be useful to include in early cessation efforts with youth smokers to interrupt the progression from experimentation to addiction onset. Lynch (1995) argued that targeting young people with smoking prevention efforts will never be completely effective because of the association of smoking with adulthood for adolescents in the transitional phase of growing up. Instead, targeting youths with early cessation efforts may be a more realistic option. This view is supported by Sargent et al. (1998) who stated that cessation interventions are necessary to forestall the transition from occasional, opportunistic smoking to daily, addicted smoking. Since present results show that current smokers (like non-smokers) are also concerned about becoming addicted and that these concerns correspond with intentions to stop smoking, addiction education can be a useful inclusion as part of cessation interventions targeted at youth smokers.

### ***7.5.2 Future research***

The previous section suggested that addiction education may practically be included as part of primary prevention and early cessation interventions targeted at young people. Further research in the following areas, however, is needed to validate this suggestion:

- investigation, especially longitudinal, is required to determine the extent that addiction as a primary prevention tool (perhaps executed as a fear

appeal) will actually protect non-smokers through adolescence against cigarette trials and smoking uptake;

- investigation is required to determine whether concerns about becoming addicted as a cessation strategy could potentially reduce the perceived self-efficacy of smokers and perhaps encourage maladaptive coping strategies which perpetuate smoking behaviours (e.g., ‘I can’t quit because I’m addicted’);
- investigation is needed to understand how young people’s smoking intentions change as their perceptions of smoking addiction mature. Primary school students in this study, for example, were more likely than the older students to believe in opportunities to smoke without becoming addicted, and were also more likely to show increased odds of intentions to smoke associated with these beliefs;
- investigation is required to determine whether addiction concerns will protect young people against other drugs and substances.

The measurement of personality traits was beyond the scope of the present research but it would be interesting to further investigate the issue of autonomy/control salience as a defining personality trait of smokers versus non-smokers.

## **7.6 Concluding comments**

This study represents an original and significant contribution to the literature on youth tobacco control. To date, only one previous work, Rugkasa et al.’s (2001) qualitative study, has explored the topic of children’s concepts of addiction in a significant way. The present study adds to the existing literature and extends Rugkasa’s work in five ways:

1. both children and adolescents were recruited to allow for developmental differences in young people’s conceptualisation of addiction to be explored;

2. the focus on addiction was expanded to include the exploration of young people's conceptualisation of both smoking addiction and addiction in general;
3. associations between specific conceptions of smoking addiction and young people's intentions to smoke were investigated;
4. overall differences in conceptions of smoking and general addiction were explored in relation to young people's smoking status; and,
5. both qualitative and quantitative methodologies were used to provide breadth and depth to the overall research.

In practical terms, this study highlights the relevance of addiction for young people and shows how concepts of addiction are related to both smokers and non-smokers' intentions to smoke cigarettes. This knowledge can be applied by social marketers to increase the effectiveness of primary prevention and cessation intervention efforts targeted at youth populations and thereby, reduce the overall prevalence of smoking (and associated morbidity and mortality) in society.

## BIBLIOGRAPHY

---

- Abernathy, T. J., Massad, L., & Romano-Dwyer, L. (1995). The relationship between smoking and self-esteem. *Adolescence*, 30(120), 899-907.
- ACOSH. (1995). Smoking and young people. Perth: Australian Council on Smoking & Health.
- Adams, B., & Bromley, B. (1998). *Psychology for health care: Key terms and concepts*. Hong Kong: Macmillan Press Ltd.
- Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., et al. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24.
- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4)(Jul), 463-493.
- Ajzen, I. (1991). The theory of planned behavior. *Organisational Behavior and Human Decision Processes*, 50, 179-211.
- Ajzen, I., & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behaviors. *Journal of Personality and Social Psychology*, 27(1), 41-57.
- Albrecht, S. A., Reynolds, M. D., Cornelius, M. D., Heidinger, J., & Armfield, C. (2002). Connectedness of pregnant adolescents who smoke. *Journal of Child and Adolescent Psychiatric Nursing*, 15(1), 16-23.

- Alchin, T. M., & Lee, C. (1995). Some aspects of the demand for and supply of tobacco products concerning teenagers. *Addiction Research*, 3(3), 199-219.
- Alexander, H. M., Callcott, R., Dobson, A. J., Hards, G. R., Lloyd, D. M., O'Connell, D. L., et al. (1983). Cigarette smoking and drug use in schoolchildren: IV - Factors associated with changes in smoking behaviour. *International Journal of Epidemiology*, 12 (1), 59-66.
- Amonini, C. (2001). *The relative influence of morality, legitimacy and other determinants of youth alcohol, tobacco and marijuana use*. Unpublished Doctor of Philosophy, University of Western Australia, Perth.
- Anderson, M. R., Leroux, B. G., Bricker, J. B., Rajan, K. B., & Peterson, A. V. (2004). Antismoking parenting practices are associated with reduced rates of adolescent smoking. *Archives of Pediatrics & Adolescent Medicine*, 158(4), 348-352.
- Andrews, J. A. (2005). Perceptions of what other thinks and smoking. *Pediatrics for Parents*, 21(6), 5.
- Arai, Y., Hosokawa, T., Fukao, A., Izumi, Y., & Hisamichi, S. (1997). Smoking behaviour and personality: A population-based study in Japan. *Addiction*, 92(8), 1023-1033.
- Argyrous, G. (2002). *Statistics for social and health research with a guide to SPSS*. London: Sage Publications Ltd.
- Ariza-Cardenal, C., & Nebot-Adell, M. (2002). Factors associated with smoking progression among Spanish adolescents. *Health Education Research*, 17(6), 750-760.
- Armstrong, B. K., Klerk, N. H. d., Shean, R. E., Dunn, D. A., & Dolin, P. J. (1990). Influence of education and advertising on the uptake of smoking by children. *The Medical Journal of Australia*, 152(February 5), 117-124.
- Ary, D. V., & Biglan, A. (1988). Longitudinal changes in adolescent cigarette smoking behavior: Onset and cessation. *Journal of Behavioral Medicine*, 11 (4), 361-382.

- Ary, D. V., Duncan, T. E., Biglan, A., Metzler, C. W., Noell, J. W., & Smolkowski, K. (1999). Development of adolescent problem behavior. *Journal of Abnormal Child Psychology*, 27(2), 141-153.
- ASH Australia. (1999). *Nicotine and addiction - Fact Sheet No.6.1*. Woolloomooloo, NSW: Action On Smoking and Health Australia.
- Ashley, M. J., Cohen, J., Bull, S., Ferrence, R., Poland, B., Pederson, L. L., et al. (2000). Knowledge about tobacco and attitudes toward tobacco control: How different are smokers and nonsmokers? *Canadian Journal of Public Health*, 91(5), 376-380.
- Audrain-McGovern, J., Lerman, C., Wileyto, E. P., Rodriguez, D., & Shiels, P. G. (2004). Interacting effects of genetic predisposition and depression on adolescent smoking progression. *The American Journal of Psychiatry*, 161(7), 1224-1230.
- Ausems, M., Mesters, I., van Breukelen, G., & de Vries, H. (2003). Do Dutch 11-12 years olds who never smoke, smoke experimentally or smoke regularly have different demographic backgrounds and perceptions of smoking? *European Journal of Public Health*, 13(2), 160-167.
- Australia Institute of Health and Welfare. (2003). *Statistics on drug use in Australia 2002. AIHW Cat. No. PHE43*. Canberra: Australian Institute of Health and Welfare.
- Australia Institute of Health and Welfare. (2005). *2004 National drug strategy household survey: First results (AIHW cat. no. PHE 57)*. Canberra: AIHW (Drug Statistics Series No.13).
- Baker, T. B., Brandon, T. H., & Chassin, L. (2004). Motivational influences on cigarette smoking. *Annual Review of Psychology*, 55, 463-491.
- Barnea, Z., Rahav, G., & Teichman, M. (1987). The reliability and consistency of self-reports on substance use in a longitudinal study. *British Journal of Addiction*, 82, 891-898.



- Barnea, Z., Teichman, M., & Rahav, G. (1992). Personality, cognitive and interpersonal factors in adolescent substance use: A longitudinal test of an integrative model. *Journal of Youth and Adolescence*, 21(2).
- Bauman, K. E., & Ennett, S. T. (1996). On the importance of peer influence for adolescent drug use: Commonly neglected considerations. *Addiction*, 91(2), 185-198.
- Bauman, K. E., & Koch, G. G. (1983). Validity of self-reports and descriptive and analytical conclusions: The case of cigarette smoking by adolescents and their mothers. *American Journal of Epidemiology*, 118(1), 90-98.
- Baumeister, R. F., & Scher, S. J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin*, 104(1), 3-22.
- Beaglehole, R., Eyles, E., & Harding, W. (1978). Cigarette smoking habits, attitudes and associated social factors in adolescents. *New Zealand Medical Journal*, 87(12 April), 239-242.
- Becker, G. S., & Murphy, K. M. (1988). A theory of rational addiction. *Journal of Political Economy*, 96(4), 675.
- Bentler, P. M., & Speckart, G. (1981). Attitudes "cause" behaviors: A structural equation analysis. *Journal of Personality and Social Psychology*, 40(2), 226-238.
- Berger, G. (1982). *Addiction: Its causes, problems and treatments*. New York: Franklin Watts.
- Bermudex, J. (1999). Personality and health-protective behaviour. *European Journal of Personality*, 13, 83-103.
- Berndt, T. J. (1979). Developmental changes in conformity to peers and parents. *Developmental Psychology*, 15(6), 608-616.
- Bewley, B. R. (1978). Smoking in childhood. *Postgraduate Medical Journal*, 54(March), 197-198.

- Bewley, B. R., & Bland, J. M. (1977). Academic performance and social factors related to cigarette smoking in schoolchildren. *British Journal of Preventive and Social Medicine*, 31, 18-24.
- Bewley, B. R., Bland, J. M., & Harris, R. (1974). Factors associated with the starting of cigarette smoking by primary school children. *British Journal of Preventive Social Medicine*, 28, 37-44.
- Bibace, R., & Walsh, M. E. (1980). Development of children's concepts of illness. *Pediatrics*, 66(6), 912-917.
- Bland, M. (2003, 13 Nov 2003). *Cluster randomised trials in the medical literature*. Retrieved 25th Oct, 2004, from <http://www-users.york.ac.uk/~mb55/talks/clusml.htm>
- Block, J., Block, J. H., & Keyes, S. (1988). Longitudinal foretelling drug usage in adolescence: Early childhood personality and environmental precursors. *Child Development*, 59, 336-355.
- Boeree, C. G. (1998). *Personality theories: Hans Eysenck and other temperament theorists*. Retrieved 20 May, 2005, from <http://www.ship.edu/~cgboeree/eysenck.html>
- Borland, B. L., & Rudolph, J. P. (1975). Relative effects of low socio-economic status, parental smoking and poor scholastic performance on smoking among high school students. *Social Science and Medicine*, 9, 27-30.
- Borland, R. (1997). What do people's estimates of smoking related risk mean? *Psychology and Health*, 12, 513-521.
- Borland, R. (2000). Addiction? *Tobacco Control - Online (Electronic letters to the editor - 11 Sept)*, Available: <http://tc.bmjournals.com/cgi/eletters/9/3/313#340>.
- Borland, R. (2006). Justification for use of a school-based sample. Perth, WA.
- Brace, N., Kemp, R., & Snelgar, R. (2000). *SPSS for psychologists: A guide to data analysis using SPSS for windows (Versions 8, 9 and 10)*. New York: Palgrave.

- Briggs, V. L., Lindorff, K. J., & Ivers, R. G. (2003). Aboriginal and Torres Strait Islander Australians and tobacco. *Tobacco Control*, 12(Suppl II), ii5-ii8.
- Brigham, J. (1998). *Dying to quit: Why we smoke and how we stop*. Washington, D.C.: Joseph Henry Press.
- Britt, M., & Jachym, N. (1996). Cigarette and alcohol use among 4th and 5th graders: Result of a new survey. *Journal of Alcohol and Drug Education*, 41(3), 44-54.
- Brook, J. S., Gordon, A. S., & Whiteman, M. (1985). Stability of personality during adolescence and its relationship to stage of drug use. *Genetic, Social and General Psychology Monographs*, 111(3), 319-330.
- Brook, J. S., Pahi, T., Balka, E. B., & Fei, K. (2004). Smoking among New Yorican adolescents: Time 1 predictors of time 2 tobacco use. *The Journal of Genetic Psychology*, 165(3), 324-340.
- Brook, J. S., Whiteman, M., Czeisler, L. J., Shapiro, J., & Cohen, P. (1997). Cigarette smoking in young adults: Childhood and adolescent personality, familial, and peer antecedents. *Journal of Genetic Psychology*, 158 (2), 172-188.
- Brook, J. S., Whiteman, M., Gordon, A. S., & Cohen, P. (1986). Dynamics of childhood and adolescent personality traits and adolescent drug use. *Developmental Psychology*, 22(3), 403-414.
- Bryman, A., & Cramer, D. (1992). *Quantitative data analysis for social scientists*. New York: Routledge, Chapman and Hall Inc.
- Buckley, M. A., & Walsh, M. E. (1998). Children's understanding of violence: A developmental analysis. *Applied Developmental Science*, 2(4), 182-193.
- Buller, D. B., Borland, R., Woodall, W. G., Hall, J. R., Burris-Woodall, P., & Voeks, J. H. (2003). Understanding factors that influence smoking uptake. *Tobacco Control*, 12(Suppl. IV), iv16-iv25.
- Burdess, N. (1994). *The really understandable stats book*. Riverwood, NSW: Prentice Hall Australia Pty Ltd.

- Byrne, D. G., Byrne, A. E., & Reinhart, M. I. (1993). Psychosocial correlates of adolescent cigarette smoking: Personality or environment. *Australian Journal of Psychology, 45* (2), 87-95.
- Byrne, D. G., & Mazanov, J. (2001). Self-esteem, stress and cigarette smoking in adolescents. *Stress and Health, 17*, 105-110.
- Caraballo, R. S., Giovino, G. A., & Pechacek, T. F. (2004). Self-reported cigarette smoking vs. serum cotinine among US adolescents. *Nicotine & Tobacco Research, 6*(1), 19-25.
- Cartwright, A., & Thomson, J. G. (1960). Young smokers: An attitude study among schoolchildren touching also on parental influence. *British Journal of Preventive and Social Medicine, 14*, 28-34.
- Center for Chronic Disease Prevention and Health Promotion CDC. (1998). Selected cigarette smoking initiation and quitting behaviors among high school students: United States 1997. *Morbidity and Mortality Weekly Report (MMWR), 47*(19), 386-389.
- Chapman, S., Wong, W. L., & Smith, W. (1993). Self-exempting beliefs about smoking and health: Differences between smokers and ex-smokers. *American Journal of Public Health, 83* (2)(February), 215-219.
- Charlton, A. (1984). Children's opinions about smoking. *Journal of the Royal College of General Practitioners, 34*(September), 483-487.
- Charlton, A., & Blair, V. (1989). Predicting the onset of smoking in boys and girls. *Social Science Medicine, 29*(7), 813-818.
- Chassin, L., Presson, C., & Sherman, S. (1984). Cigarette smoking and adolescent psychosocial development. *Basic and Applied Social Psychology, 5*(4), 295-315.
- Chassin, L., Presson, C., Sherman, S., & McGrew, J. (1987). The changing smoking environment for middle and high school students: 1980-1983. *Journal of Behavioural Medicine, 10*(6), 581-593.

- Chassin, L., Presson, C. C., Sherman, S. J., Corty, E., & Olshavsky, R. W. (1984). Predicting the onset of cigarette smoking in adolescents: A longitudinal study. *Journal of Applied Social Psychology, 14*(3), 224-243.
- Chassin, L., Presson, C. C., Sherman, S. J., & Edwards, D. A. (1990). The natural history of cigarette smoking: Predicting young adult smoking outcomes from adolescent smoking patterns. *Health Psychology, 9*(6), 701-716.
- Chassin, L., Presson, C. C., Sherman, S. J., Montello, D., & McGrew, J. (1986). Changes in peer and parent influence during adolescence: Longitudinal versus cross-sectional perspectives on smoking initiation. *Developmental Psychology, 22* (3)(327-334).
- Chen, J., Bauman, A., Rissel, C., Tang, K. C., Forero, R., & Flaherty, B. (2000). Substance use in high school students in New South Wales, Australia, in relation to language spoken at home. *Journal of Adolescent Health, 26*, 53-63.
- Cherry, N., & Kiernan, K. (1976). Personality scores and smoking behaviour. *British Journal of Preventive and Social Medicine, 30*, 123-131.
- Christen, A. G., & Christen, J. A. (1994). Why is cigarette smoking so addicting? An overview of smoking as a chemical and process addiction. *Health Values, 18* (1)(Jan/Feb), 17-24.
- Clayton, S. (1991). Gender differences in psychosocial determinants of adolescent smoking. *Journal of School Health, 61*(3), 115-121.
- Colby, S. M., Tiffany, S. T., Shiffman, S., & Niaura, R. S. (2000). Are adolescent smokers dependent on nicotine? A review of the evidence. *Drug & Alcohol Dependence, 59*(Suppl.1), S83-S95.
- Conner, M., & Norman, P. (1996). The role of social cognition in health behaviour. In M. Conner & P. Norman (Eds.), *Predicting Health Behaviour* (pp. 1-22). Buckingham: Open University Press.
- Conrad, K., Flay, B., & Hill, D. (1992). Why children start smoking cigarettes: Predictors of onset. *British Journal of Addiction, 87*, 1711-1724.

- Coogan, P., Adams, M., Geller, A., Brooks, D., Miller, D., Lew, R., et al. (1998). Factors Associated with Smoking Among Children and Adolescents in Connecticut. *American Journal of Preventive Medicine*, 15, 17-24.
- Cooper, D. R., & Schindler, P. S. (2001). *Business research methods* (7th ed.). Singapore: McGraw-Hill Irwin.
- Craig, G. (1989). *Human development*. (5 ed.). New Jersey: Prentice-Hall Inc.
- Crocker, P., Kowalski, N., Kowalski, K., Chad, K., Humbert, L., & Forrester, S. (2001). Smoking behaviour and dietary restraint in young adolescent women: The role of physical self-perceptions. *Canadian Journal of Public Health*, 92(6), 428-432.
- Crowe, J. W., Torabi, M. R., & Nakornkhet, N. (1994). Cross-cultural study of samples of adolescents' attitudes, knowledge, and behaviours related to smoking. *Psychological Reports*, 75, 1155-1161.
- David, A. M., & WHO Western Pacific Regional Office. (2003). Regional summary for the Western Pacific Region. In O. Shafey, S. Dolwick & G. E. Guindon (Eds.), *Tobacco control country profiles (2nd edition)* (pp. 41-44). Helsinki: The American Cancer Society, World Health Organization and International Union Against Cancer.
- Davidson, B. (2002, Jul 13). Fear of addiction. *New Scientist*, 26.
- de Meyrick, J. (2001). Forget the "blood and gore": An alternative message strategy to help adolescents avoid cigarette smoking. *Health Education*, 101(3), 99-107.
- de Vaus, D. A. (2002). *Surveys in social research* (5th ed.). Crows Nest, NSW: Allen & Unwin.
- de Vries, H., Engels, R., Kremers, S., Wetzels, J., & Mudde, A. (2003). Parents' and friends' smoking status as predictors of smoking onset: Findings from six European countries. *Health Education Research*, 18(5), 627-636.

- Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.
- Denzin, N. K., & Lincoln, Y. S. (1994). Introduction - Entering the field of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*. London: Sage.
- Department of Education. (2001). *Summary statistics for Western Australia Schools*. Perth, WA: Department of Education (Western Australia).
- Department of Immigration and Multicultural Affairs. (2005). *Australia's education system*. Retrieved 24 Feb, 2006, from <http://www.immi.gov.au/settle/education/system.htm#Compulsory>
- Derzon, J. H., & Lipsey, M. W. (1999). Predicting tobacco use to age 18: A synthesis of longitudinal research. *Addiction*, 94 (7), 995-1006.
- Deshpande, R. (1983). "Paradigms lost": On theory and method in research in marketing. *Journal of Marketing*, 47(Fall), 101-110.
- DiClemente, C. C., Prochaska, J. O., Fairhurst, S. K., Velicer, W. F., Velasquez, M. M., & Rossi, J. S. (1991). The process of smoking cessation: An analysis of precontemplation, contemplation and preparation stages of change. *Journal of Consulting and Clinical Psychology*, 59(2), 295-304.
- Dielman, T. E., Butchart, A. T., Shope, J. T., & Miller, M. (1990-1991). Environmental correlates of adolescent substance use and misuse: Implications for prevention programs. *The International Journal of the Addictions*, 25(7A & 8A), 855-880.
- DiFranza, J. R., Rigotti, N. A., McNeill, A. D., Ockene, J. K., Savageau, J. A., St Cyr, D., et al. (2000). Initial symptoms of nicotine dependence in adolescents. *Tobacco Control*, 9(Autumn), 313-319.
- DiFranza, J. R., Savageau, J. A., Fletcher, K., Ockene, J. K., Rigotti, N. A., McNeill, A. D., et al. (2002). Measuring the loss of autonomy over nicotine use in adolescents: The DANDY (Development and Assessment

- of Nicotine Dependence in Youths) study. *Archives of Pediatrics & Adolescent Medicine*, 156(April), 397-403.
- DiFranza, J. R., Savageau, J. A., Rigotti, N. A., Fletcher, K., Ockene, J. K., McNeill, A. D., et al. (2002). Development of symptoms of tobacco dependence in youths: 30 month follow up data from the DANDY study. *Tobacco Control*, 11, 228-235.
- Dinh, K. T., Sarason, I. G., Peterson, A. V., & Onstad, L. E. (1995). Children's perceptions of smokers and non-smokers: A longitudinal study. *Health Psychology*, 14(1), 32-40.
- Dolcini, M. M., & Aldler, N. E. (1994). Perceived competencies, peer group affiliation and risk behavior among early adolescents. *Health Psychology*, 13(6), 496-506.
- Donovan, J. E., Jessor, R., & Costa, F. M. (1988). Syndrome of problem behavior in adolescence: A replication. *Journal of Consulting and Clinical Psychology*, 56(5), 762-765.
- Donovan, J. E., Jessor, R., & Costa, F. M. (1999). Adolescent problem drinking: Stability of psychosocial and behavioral correlates across a generation. *Journal of Studies on Alcohol*, 60(3), 352-.
- Dowdell, E. B. (2002). Urban seventh graders and smoking: A health risk behavior assessment. *Issues in Comprehensive Pediatric Nursing*, 25, 217-229.
- DuRant, R. H., Kahn, J., Beckford, P. H., & Woods, E. R. (1997). The association of weapon carrying and fighting on school property and other health risk and problem behaviors among high school students. *Archives of Pediatrics & Adolescent Medicine*, 151(4), 360-366.
- DuRant, R. H., Smith, J. A., Kreiter, S. R., & Krowchuk, D. P. (1999). The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. *Archives of Pediatrics & Adolescent Medicine*, 153(3), 286-291.



- Eaves, L. J., & Eysenck, H. J. (1980). The relationship between smoking and personality. In *The causes and effects of smoking* (pp. 283-314). Beverly Hills, California: Sage Publications.
- Eckhardt, L., Woodruff, S. I., & Elder, J. P. (1994). A longitudinal analysis of adolescent smoking and its correlates. *Journal of School Health, 64* (2)(Feb), 67-72.
- Eiser, J. R. (1985). Smoking: The social learning of an addiction. *Journal of Social and Clinical Psychology, 3* (4), 446-457.
- Eiser, J. R., Morgan, M., Gammage, P., & Gray, E. (1989). Adolescent smoking: Attitudes, norms and parental influence. *British Journal of Social Psychology, 28*, 193-202.
- Emery, E. M., McDermott, R. J., Holcomb, D. R., & Marty, P. J. (1993). The relationship between youth substance use and area-specific self-esteem. *The Journal of School Health, 63*(5), 224-228.
- Engels, R. C. M. E., Knibbe, R. A., & Drop, M. J. (1999). Predictability of smoking in adolescence: Between optimism and pessimism. *Addiction, 94*(1), 115-124.
- Evans, R. I., Rozelle, R. M., Mittlemark, M. B., Hansen, W. B., Bane, A. L., & Havis, J. (1978). Deterring the onset of smoking in children: Knowledge of immediate physiological effects and coping with peer pressure, media pressure and parent modeling. *Journal of Applied Social Psychology, 8*(2), 126-135.
- Eysenck, H. J. (1965). *Smoking, health and personality*. London, UK: Weidenfeld and Nicolson.
- Eysenck, H. J. (1980). *The causes and effects of smoking*. Beverly Hills, California: Sage Publications Inc.
- Fairthorne, A., Hayman, J., & White, V. (2003). *Cigarette consumption among 12 to 17 year-old Western Australian school students in 2002*. Carlton, VIC.: Centre for Behavioural Research in Cancer, The Cancer Council Victoria.

- Faulkner, D. L., Farrelly, M. C., & Hersey, J. C. (2000). Race, grade level and cigarette smoking: The 1999 national youth tobacco survey. *Journal of The National Cancer Institute*, 92(16), 1360.
- Feighery, E., Altman, D. G., & Shaffer, G. (1991). The effects of combining education and enforcement to reduce tobacco sales to minors. *JAMA*, 266(22)(December 1), 3168-3171.
- Fergusson, D. M., Lynskey, M. T., & Horwood, L. J. (1995). The role of peer affiliations, social, family and individual factors in continuities in cigarette smoking between childhood and adolescence. *Addiction*, 90, 647-659.
- Fichtenberg, C. M., & Glantz, S. A. (2002). Youth access interventions do not affect youth smoking. *Pediatrics*, 109(6), 1088-1092.
- Field, A. (2003). *Discovering statistics using SPSS for windows*. London: Sage Publications Ltd.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading: Addison-Wesley Publishing Co.
- Floy, B. R., d'Avernas, J. R., Best, J. A., Kersell, M. W., & Ryan, K. B. (1983). Cigarette smoking: Why young people do it and ways of preventing it. In P. McGrath & P. Firestone (Eds.), *Paediatric and Adolescent Behavioural Medicine: Issues in Treatment*. New York: Springer Inc.
- Forero, R., Bauman, A., Chen, J. X. C., & Flaherty, B. (1999). Substance use and socio-demographic factors among Aboriginal and Torres Strait Islander school students in New South Wales. *Australian And New Zealand Journal of Public Health*, 23(3), 295-300.
- Foster, J. J. (2001). *Data analysis using SPSS for Windows Versions 8 to 10: A beginner's guide*. London: SAGE Publications.
- Fox, R. J., Krugman, D. M., Fletcher, J. E., & Fischer, P. M. (1998). Adolescents' attention to beer and cigarette print ads and associated product warnings. *Journal of Advertising*, XXVII(3), 57-68.

- Friend, K., Carmona, M., Wilbur, P., & Levy, D. (2001). Youths' social sources of cigarettes: The limits of youth-access policies. *Contemporary Drug Problems*, 28(3), 507-526.
- Gale, A., & Ney, T. (1989). *Smoking and human behavior*. London: John Wiley and Sons Ltd.
- Gallet, C. (2004). The efficacy of state-level antismoking laws: Demand and supply considerations. *Journal of Economics and Finance*, 28(3), 404-412.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference 11.0 update* (4th ed.). New York: Pearson Education Inc.
- Gerrard, M., Gibbons, F. X., Reis-Bergan, M., & Russell, D. W. (2000). Self-esteem, self-serving cognitions and health risk behavior. *Journal of Personality*, 68(6), 1177-1201.
- Gillmore, M. R., Wells, E. A., Simpson, E. E., Morrison, D. M., Hoppe, M. J., Wilsdon, A. A., et al. (2002). Children's beliefs about smoking. *Nicotine & Tobacco Research*, 4, 177-183.
- Gilpin, E. A., Emery, S. L., Farkas, A. J., Distefan, J. M., White, M. M., & Pierce, J. P. (2001). *The California tobacco control program: A decade of progress - Results from the California Tobacco Surveys 1990-1998*. La Jolla, CA: University of California.
- Glendinning, A. (1998). Family life, health and lifestyles in rural areas: The role of self-esteem. *Health Education*, 98(2), 59-.
- Glendinning, A. (2002). Self-esteem and smoking in youth - muddying the waters? *Journal of Adolescence*, 25, 415-425.
- Goddard, E. (1990). *Why do children start smoking: An enquiry carried out by the Social Survey Division of OPCS on behalf of the Department of Health*. London: Office of Population Census & Surveys: Social Survey Division.
- Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion*, 11 (2)(November/December), 87-98.

- Goldman, L. K., & Glantz, S. A. (1998). Evaluation of antismoking advertising campaigns. *JAMA*, 279(10), 772-777.
- Golub, A., & Johnson, B. D. (2001). Variation in youthful risks of progression from alcohol and tobacco to marijuana and to hard drugs across generations. *American Journal of Public Health*, 91(2), 225-232.
- Gordon, N. P. (1986). Never smokers, triers and current smokers: Three distinct target groups for school-based antismoking programs. *Health Education Quarterly*, 13 (2)(Summer), 163-180.
- Gray, D., Morfitt, B., Ryan, K., & Williams, S. (1997). The use of tobacco, alcohol and other drugs by young Aboriginal people in Albany, Western Australia. *Australian and New Zealand Journal of Public Health*, 21(1), 71-76.
- Greenhalgh, T., & Taylor, R. (1997). How to read a paper: Papers that go beyond numbers (qualitative research). *British Medical Journal*, 315(20 Sept), 740-743.
- Greenlund, K. J., Johnson, C. C., Webber, L. S., & Berensen, G. S. (1997). Cigarette smoking attitudes and first use among third- through sixth-grade students: The Bogalusa Heart Study. *American Journal of Public Health*, 87 (8)(August), 1345-1348.
- Guindon, G. E., Tobin, S., & Yach, D. (2002). Trends and affordability of cigarette prices: Ample room for tax increases and related health gains. *Tobacco Control*, 11, 35-43.
- Hair, J. F., Anderson, R. E., & Tatham, R. L. (1987). *Multivariate data analysis with readings*. New York: Macmillan Publishing Company.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis with readings* (4th ed.). London: Prentice-Hall International Inc.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). New Jersey: Prentice Hall Inc.

- Harper, T. A., & Martin, J. E. (2002). Under the radar - how the tobacco industry targets youth in Australia. *Drug & Alcohol Review*, 21, 387-392.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, 112(1), 64-105.
- Hawthorne, G. (2001). Drug education: Myth and reality. *Drug & Alcohol Review*, 20, 111-119.
- Health Canada. (2000). *Women's health surveillance report: A multi-dimensional look at the health of Canadian Women*. Ottawa: Canadian Institute for Health Information.
- HealthInSite. (2005). *Smoking*. Retrieved Aug, 2005, from <http://www.healthinsite.gov.au/>
- Heaven, P. C. L. (1989). Adolescent smoking, toughmindedness and attitudes to authority. *Australian Psychologist*, 24(1), 27-35.
- Henningfield, J. E., Moolchan, E. T., & Zeller, M. (2003). Regulatory strategies to reduce tobacco addiction in youth. *Tobacco Control*, 12(Suppl.1), i14-i24.
- Henriksen, L., & Jackson, C. (1999). Reliability of children's self-reported cigarette smoking. *Addictive Behaviors*, 24(2), 271-277.
- Herrnstein, R. J., & Prelec, D. (1992). A theory of addiction. In G. Loewenstein & J. Elster (Eds.), *Choice over time* (pp. 331-360). New York: Russell Sage Foundation.
- Higgins, A., & Conner, M. (2003). Understanding adolescent smoking: The role of the Theory of Planned Behaviour and implementation intentions. *Psychology, Health & Medicine*, 8(2), 173-186.
- Hill, D. (1990, 1-5 April). *Causes of smoking in children*. Paper presented at the Seventh World Conference on Tobacco and Health, Perth, Western Australia.

- Hill, D., & Carroll, T. (2003). Australia's national tobacco campaign. *Tobacco Control, 12*(Suppl. II), ii9-ii14.
- Hill, D., White, V., & Effendi, Y. (2002). Changes in the use of tobacco among Australian secondary students: Results of the 1999 prevalence study and comparisons with earlier years. *Australian And New Zealand Journal of Public Health, 26* (20), 156-163.
- Hillhouse, A. (1990). *Listening to children: Lessons for the anti-smoking campaign*. Paper presented at the Proceedings of the 7th World Conference on Tobacco and Health, Perth, Western Australia.
- Hine, D. W., Summers, C., Tilliczek, K., & Lewko, J. (1997). Expectancies and mental models as determinants of adolescents' smoking decisions. *Journal of Social Issues, 53*(1), 35-52.
- Holm, K., Kremiers, S. P. J., & de Vries, H. (2003). Why do Danish adolescents take up smoking? *European Journal of Public Health, 13*(1), 67-74.
- Horn, D. (1979). Psychological analysis of establishment and maintenance of the smoking habit. In N. A. Krasnegor (Ed.), *Cigarette smoking as a dependence process - NIDA research monograph 23* (pp. 24-29). Rockville, USA: Department of Health, Education and Welfare.
- Hu, T. W., Lin, Z., & Keeler, T. E. (1998). Teenage smoking, attempts to quit, and school performance. *American Journal of Public Health, 88* (6)(June), 940-943.
- Hunter, M., & May, R. B. (1993). Some myths concerning parametric and nonparametric tests. *Canadian Psychology, 34:4*(Oct), 384-389.
- Hunter, S. M., Baugh, J. G., Webber, L. S., Sklov, M. C., & Berenson, G. S. (1982). Social learning effects on trial and adoption of cigarette smoking in children: The Bogalusa Heart Study. *Preventive Medicine, 11*, 29-42.
- Hutchison, D. (2004, 11-13 May). *Clustering effects in TIMSS*. Paper presented at the International Research Conference (IRC-2004), University of Cyprus, Lefkosia.

- Iannotti, R., & Bush, P. (1992). Perceived vs actual friends' use of alcohol, cigarettes, marijuana and cocaine: Which has the most influence? *Journal of Youth and Adolescence*, 21(3), 375-389.
- Iannotti, R., Bush, P., & Weinfurt, K. (1996). Perception of friends' use of alcohol, cigarettes, and marijuana among urban schoolchildren: A longitudinal analysis. *Addictive Behaviors*, 21(5), 615-632.
- Igra, V., & Irwin, C., E. (1996). Theories of adolescent risk-taking behavior. In R. J. DiClemente, W. B. Hansen & L. E. Ponton (Eds.), *Handbook of adolescent risk behavior* (pp. 35-51). New York, USA: Plenum Press.
- Irwin, C., E. (1993). Adolescence and risk taking: How are they related? In N. Bell & R. W. Bell (Eds.), *Adolescent risk taking* (pp. 7-28). Newbury Park, CA: Sage Inc.
- Jackson, C., & Henriksen, L. (1997). Do as I say: Parent smoking, anti-smoking socialisation, and smoking onset among children. *Addictive Behaviors*, 22(1)(Jan-Feb), 107-114.
- Jackson, C., Henriksen, L., Dickinson, D., & Levine, D. W. (1997). The early use of alcohol and tobacco: Its relation to children's competence and parents' behavior. *American Journal of Public Health*, 87(3), 359-365.
- Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health Education Quarterly*, 11(1), 1-47.
- Jarvis, M. J., Goddard, E., & McNeill, A. (1990). Do attitudes predict uptake of smoking in teenagers? Case not proven. *Social Science Medicine*, 31(9), 997-1001.
- Jarvis, M. J., Wardle, J., Waller, J., & Owen, L. (2003). Prevalence of hardcore smoking in England and associated attitudes and beliefs: Cross sectional study. *British Medical Journal*, 326, 1061-1063.
- Jessor, R. (1984). Adolescent development and behavioral health. In J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller & S. M. Weiss (Eds.), *A handbook of health enhancement and disease prevention* (pp. 69-90). New York, USA: John Wiley and Sons.

- Jessor, R. (1998). New perspectives on adolescent risk behavior. In R. Jessor (Ed.), *New perspectives on adolescent risk behavior*. New York, USA: Cambridge University Press.
- Jessor, R., Chase, J. A., & Donovan, J. E. (1980). Psychosocial correlates of marijuana use and problem drinking in a national sample of adolescents. *American Journal of Public Health, 70*(6), 604-613.
- Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York, USA: Cambridge University Press.
- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development*. New York: Academic Press Inc.
- Jessor, R., Turbin, M. S., & Costa, F. M. (1998). Protective factors in adolescent health behavior. *Journal of Personality and Social Psychology, 75*(3), 788-800.
- Johnson, J. L., Tucker, R. S., Ratner, P. A., Bottorff, J. L., Prkachin, K. M., Shoveller, J., et al. (2004). Socio-demographic correlates of cigarette smoking among high school students: Results from the British Columbia Youth Survey on smoking and health. *Canadian Journal of Public Health, 95*(4), 268-271.
- Kachigan, S. K. (1986). *Statistical analysis: An interdisciplinary introduction to univariate and multivariate methods*. New York: Radius Press.
- Kafka, R., & London, P. (1991). Communication in Relationships and Adolescent Substance Use: The Influence of Parents and Friends. *Adolescence, 26*(103), 587-598.
- Kahne, J. (1996). The politics of self-esteem. *American Educational Research Journal, 33*(1), 3-22.
- Kail, R. (1998). *Children and their development*. New Jersey: Prentice Hall Inc.
- Kandel, D. B. (1980). Drug and drinking behavior among youth. *Annual Review of Psychology, 6*, 235-285.



- Kandel, D. B. (1985). On the processes of peer influences in adolescent drug use: A developmental perspective. In D. W. Brook, J. S. Brook, D. J. Lettieri & B. Stimmel (Eds.), *Alcohol and substance abuse in adolescence* (Vol. 4 - nos. 3/4, pp. 139-163). New York: The Haworth Press Inc.
- Kandel, D. B. (1996). The parental and peer context of adolescent deviance: An algebra of interpersonal influences. *Journal of Drug Issues*, 26, 289-315.
- Kandel, D. B., & Andrews, K. (1987). Processes of adolescent socialisation by parents and peers. *The International Journal of the Addictions*, 22(4), 319-342.
- Kandel, D. B., Kessler, R. C., & Margulies, R. Z. (1978). Antecedents of adolescent initiation into stages of drug use: A developmental analysis. *Journal of Youth and Adolescence*, 7(1), 13-40.
- Kandel, D. B., & Yamaguchi, K. (1993). From beer to crack: Developmental patterns of drug involvement. *American Journal of Public Health*, 83(6), 851-855.
- Kashdan, T. B., Vetter, C. J., & Collins, R. L. (2005). Substance use in young adults: Associations with personality and gender. *Addictive Behaviors*, 30, 259-269.
- Kaufman, N. J., Castrucci, B. C., Mowery, P. D., Gerlach, K. K., Emont, S. L., & Orleans, C. T. (2002). Predictors of change on the smoking uptake continuum among adolescents. *Archives of Pediatrics & Adolescent Medicine*, 156(6), 581-587.
- Kawabata, T., Cross, D., Nishioka, N., & Shimai, S. (1999). Relationship between self-esteem and smoking behavior among Japanese early adolescents: Initial results from a three year study. *The Journal of School Health*, 69(7), 280-284.
- Kawakami, N., Takai, A., Takatsuka, N., & Shimizu, H. (2000). Eysenck's personality and tobacco/nicotine dependence in male ever-smokers in Japan. *Addictive Behaviors*, 25(4), 585-591.

- Kellner, F. (2000). *Cigarette smoking and young women's presentation of self*. Ottawa: Health Canada.
- Kessler, D. A. (1995). Nicotine addiction in young people. *The New England Journal of Medicine*, 333(3)(Jul 20), 186-189.
- Kok, G. (1983). The further away, the less serious: Effect of temporal distance on perceived value and probability of a future event. *Psychological Reports*, 52, 531-535.
- Kozicki, Z. A. (1986). Why do adolescents use substances (drugs/alcohol)? *Journal of Alcohol and Drug Education*, 32(1, Fall), 1-7.
- Krohn, M. D., Massey, J. L., Skinner, W. F., & Lauer, R. M. (1983). Social bonding theory and adolescent cigarette smoking: A longitudinal analysis. *Journal of Health and Social Behavior*, 24(December), 337-349.
- Krosnick, J. A., & Judd, C. M. (1982). Transitions in social influence at adolescence: Who induces cigarette smoking? *Developmental Psychology*, 18(3), 359-368.
- Langille, D. B., Curtis, L., Hughes, J., & Murphy, G. T. (2003). Association of socio-economic factors with health risk behaviors among high school students in rural Nova Scotia. *Canadian Journal of Public Health*, 94(6), 442-447.
- Lantz, P. M., Jacobson, P. D., Warner, K. E., Wasserman, J., Pollack, H. A., Berson, J., et al. (2000). Investing in youth tobacco control: A review of smoking prevention and control strategies. *Tobacco Control*, 9, 47-63.
- LaTour, M., & Rotfeld, H. (1997). There are threats and (maybe) fear-caused arousal: Theory and confusions of appeals to fear and fear arousal itself. *Journal of Advertising*, 26(3), 45-59.
- Laugesen, M., & Meads, C. (1990, 1-5 April). *Do tobacco advertising bans lower consumption? Tobacco advertising restrictions, price, income and tobacco consumption in OECD countries 1960-86*. Paper presented at the Seventh World Conference on Tobacco and Health, Perth, Western Australia.

- Laurendeau, M., & Pinard, A. (1962). *Causal thinking in the child - A genetic and experimental approach*. New York: International Universities Press Inc.
- Lee, D. J., Trapido, E., & Rodriguez, R. (2002). Self-reported school difficulties and tobacco use among fourth to seventh grade students. *The Journal of School Health*, 72(9), 368-373.
- Leventhal, H., & Cleary, P. D. (1980). The smoking problem: A review of the research and theory in behavioural risk modification. *Psychological Bulletin*, 88(2), 370-405.
- Levitt, E. E., & Edwards, J. A. (1970). A multivariate study of correlative factors in youthful cigarette smoking. *Developmental Psychology*, 2(1), 5-11.
- Lewit, E. M., & Coate, D. (1982). The potential for using excise taxes to reduce smoking. *Journal of Health Economics*, 1, 121-145.
- Lewit, E. M., Coate, D., & Grossman, M. (1981). The effects of government regulation on teenage smoking. *Journal of Law and Economics*, 24, 545-569.
- Lo, S. K., Blaze-Temple, D., Binns, C. W., & Ovensden, C. (1993). Adolescent cigarette consumption: The influence of attitudes and peer drug use. *The International Journal of the Addictions*, 28(14), 1515-1530.
- Lynch, P. (1995). Adolescent smoking - an alternative perspective using personal construct theory. *Health Education Research*, 10(1), 95-106.
- MacFadyen, L., & Hastings, G. (1999). Integrated marketing communications: A new paradigm for researching tobacco marketing and adolescent smoking. In C. Tudor-Smith (Ed.), *Tackling tobacco - Working together for better health* (pp. 129-144). Cardiff, UK: Health Promotion Wales.
- MacFadyen, L., Hastings, G., & MacKintosh, A. M. (2001). Cross sectional study of young people's awareness of and involvement with tobacco marketing. *British Medical Journal*, 322(3 March), 513-517.
- Mackay, J., & Eriksen, M. (2002). *The tobacco atlas*. Hong Kong: World Health Organisation.

- Maddux, J. E., & DuCharme, K. A. (1997). Behavioural intentions in theories of health behaviour. In D. S. Gochman (Ed.), *Handbook of Health Behaviour Research* (Vol. 1, pp. 133-151). New York: Plenum Press.
- Males, M. (1995). The influence of parental smoking on youth smoking: Is the recent downplaying justified? *Journal of School Health*, 65(6), 228-232.
- Malmstrom, F. V. (1998). Does smoking affect flying performance? Yes, but not in ways you might think. *Flying Safety*, 54(7), 6-7.
- Marlatt, G. A. (1978). Craving for alcohol, loss of control and relapse: A cognitive behavioral analysis. In P. E. Nathan, G. A. Marlatt & T. Loberg (Eds.), *Alcoholism: New directions in behavioural research and treatment* (pp. 271-314). New York: Plenum Press.
- Marston, A. R., Jacobs, D. F., Singer, R. D., Widaman, K. F., & Little, T. D. (1988). Adolescents who apparently are invulnerable to drug, alcohol and nicotine use. *Adolescence*, 23(91), 593-598.
- Martin, C. A., Kelly, T. H., Rayens, M. K., Brogli, B. R., Brenzel, A., Smith, W. J., et al. (2002). Sensation seeking, puberty and nicotine, alcohol and marijuana use in adolescence. *Psychiatry*, 41(12), 1495-1502.
- Masse, L., & Tremblay, R. E. (1997). Behavior of boys in kindergarten and the onset of substance use during adolescence. *Archives of General Psychiatry*, 54(1), 62-68.
- Maxwell, K. A. (2002). Friends: The role of peer influence across adolescent risk behaviors. *Journal of Youth and Adolescence*, 31 (4)(August), 267-277.
- Mazanov, J., & Byrne, D. G. (2002). A comparison of predictors of the adolescent intention to smoke with adolescent current smoking using discriminant function analysis. *British Journal of Health Psychology*, 7, 185-201.
- McCaul, K. D., Glasgow, R., O'Neill, H. K., Freeborn, V., & Rump, B. S. (1982). Predicting adolescent smoking. *Journal of School Health*, 52(August), 342-346.

- McDermott, R. J., Sarvela, P. D., Hoalt, P. N., Bajracharya, S. M., Marty, P. J., & Emery, E. M. (1992). Multiple correlates of cigarette use among high school students. *Journal of School Health, 62*(4), 146-151.
- MCEETYA. (2003). *National report on schooling in Australia 2000*. Carlton: Ministerial Council for Education, Employment, Training and Youth Affairs.
- McGahee, T. W., Kemp, V., & Tingen, M. (2000). A theoretical model for smoking prevention studies in preteen children. *Pediatric Nursing, 26*(2), 135-155.
- McGee, R., & Williams, S. (2000). Does low self-esteem predict health compromising behaviours among adolescents? *Journal of Adolescence, 23*, 569-582.
- McInman, A. D., & Grove, J. R. (1991). Multidimensional self-concept, cigarette smoking and intentions to smoke in adolescents. *Australian Psychologist, 26*(3), 192-196.
- McNeill, A. D., Jarvis, M. J., Stapleton, J. A., Russell, M. A. H., Eiser, J. R., Gammage, P., et al. (1988). Prospective study of factors predicting uptake of smoking in adolescents. *Journal of Epidemiology and Community Health, 43*, 72-78.
- Michell, L. (1989). Clean-air kids or ashtray kids - Children's views about other people smoking. *Health Education Journal, 48*(4), 157-161.
- Miller, D. C. (1991). *Handbook of research design and social measurement* (5th ed.). Newbury Park, CA: Sage Publications Inc.
- Ministry of Health. (2003). *Tobacco facts 2003: Public health intelligence occasional report no.20*. Wellington, New Zealand: Ministry of Health.
- Mischel, W., Grusec, J., & Masters, J. C. (1969). Effects of expected delay time on the subjective value of rewards and punishments. *Journal of Personality and Social Psychology, 11*(4), 363-373.

- Moffat, B. M., & Johnson, J. L. (2001). Through the haze of cigarettes: Teenagers girls' stories about cigarette addiction. *Qualitative Health Research, 11*(5), 668-681.
- Moore, S., & Gullone, E. (1996). Predicting adolescent risk behavior using a personalised cost-benefit analysis. *Journal of Youth and Adolescence, 25*(3), 343-359.
- Morello, P., Duggan, A., Adger, H., Anthony, J. C., & Joffe, A. (2001). Tobacco use among high school students in Buenos Aires, Argentina. *American Journal of Public Health, 91*(2), 219-225.
- Moskowitz, J. M. (2004). Assessment of cigarette smoking and smoking susceptibility among youth. *Public Opinion Quarterly, 68*(4), 565-587.
- Murray, D. M., Prokhorov, A. V., & Harty, K. C. (1994). Effects of a statewide antismoking campaign on mass media messages and smoking beliefs. *Preventative Medicine, 23*, 54-60.
- Murray, M., & Cracknell, A. (1980). Adolescents' views on smoking. *Journal of Psychosomatic Research, 24*, 243-251.
- Murray, M., Swan, A. V., Bewley, B. R., & Johnson, M. R. D. (1983). The development of smoking during adolescence: The MRC/Derbyshire smoking study. *International Journal of Epidemiology, 12*(2), 185-192.
- National Center for Social Research, & National Foundation for Educational Research. (2004). *Drug use, smoking and drinking among young people in England in 2003*. London: Department of Health.
- National Institute on Drug Abuse. (2002, 13 May). *Cigarettes and other nicotine products*. Retrieved 31 May, 2002, from <http://www.nida.nih.gov/infobox/tobacco.html>
- Neumark-Sztainer, D., Story, M., French, S. A., & Resnick, M. D. (1997). Psychosocial correlates of health compromising behaviors among adolescents. *Health Education Research, 12*(1), 37-52.

- Newman, I. M., Martin, G. L., & Irwin, R. P. (1973). Attitudes of adolescent cigarette smokers. *New Zealand Medical Journal*, 78(499), 237-240.
- Newman, I. M., & Ward, J. M. (1989). The influence of parental attitude and behavior on early adolescent cigarette smoking. *Journal of School Health*, 59(4), 150-153.
- Ney, T., & Gale, A. (Eds.). (1989). *Smoking and human behavior*. London: John Wiley & Sons Ltd.
- Noether, G. E. (1991). *Introduction to statistics - The nonparametric way*. New York: Springer-Verlag New York Inc.
- Norman, N. M., & Tedeschi, J. T. (1989). Self-presentation, reasoned action and adolescents' decisions to smoke cigarettes. *Journal of Applied Social Psychology*, 19(7), 543-558.
- Norton, E. C., Lindrooth, R. C., & Ennett, S. T. (1998). Controlling for the endogeneity of peer substance use on adolescent alcohol and tobacco use. *Econometrics and Health Economics*, 7 (5), 439-453.
- O'Connell, D. L., Alexander, H. M., Dobson, A. J., Lloyd, D. M., Hades, G. R., Springthorpe, H. J., et al. (1981). Cigarette smoking and drug use in schoolchildren: II. Factors associated with smoking. *International Journal of Epidemiology*, 10(3), 223-231.
- Oei, T. P. S., Egan, A., & Silva, P. A. (1986). Factors associated with the initiation of "smoking" in nine year old children. *Advances in Alcohol and Substance Abuse*, 5(3), 78-89.
- Oei, T. P. S., & Fea, A. (1987). Smoking prevention program for children: A review. *Journal of Drug Education*, 17(1), 11-42.
- Oluwafemi, A., & Environmental Rights Action/Friends of the Earth Nigeria. (2003). Regional summary for the African region. In O. Shafey, S. Dolwick & G. E. Guindon (Eds.), *Tobacco control country profiles (2nd edition)* (pp. 27-31). Helsinki: The American Cancer Society, World Health Organization and International Union Against Cancer.

- Owen, N., & Halford, K. (1988). Psychology, public health and cigarette smoking. *Australian Psychologist*, 23(2)(July), 137-152.
- Owens, T. (1993). Accentuate the positive - and the negative: Rethinking the use of self-esteem, self-deprecation and self-confidence. *Social Psychology Quarterly*, 56(4), 288-299.
- Owens, T. J. (1994). Two dimensions of self-esteem: Reciprocal effects of positive self-worth and self-deprecation on adolescent problems. *American Sociological Review*, 59(3), 391-407.
- Pagano, R. R. (2001). *Understanding statistics in the behavioral sciences* (6th ed.). Belmont, CA.: Wadsworth/Thomson Learning Inc.
- Pallonen, U. E. (1998). Transtheoretical measures for adolescent and adult smokers: Similarities and differences. *Preventive Medicine*, 27, A29-A38.
- Pallonen, U. E., Prochaska, J. O., Velicer, W. F., Prokhorov, A. V., & Smith, N. F. (1998). Stages of acquisition and cessation for adolescent smoking: An empirical integration. *Addictive Behaviors*, 23(3), 303-324.
- Palmer, A. B. (1970). Some variables contributing to the onset of cigarette smoking among junior high school students. *Social Science and Medicine*, 4, 359-366.
- Patrick, D. L., Cheadle, A., Thompson, D. C., Diehr, P., Koepsell, T., & Kinne, S. (1994). The validity of self-reported smoking: A review and meta-analysis. *American Journal of Public Health*, 84(7), 1086-1093.
- Patton, D., Barnes, G. E., & Murray, R. P. (1997). A personality typology of smokers. *Addictive Behaviors*, 22(2), 269-273.
- Pechmann, C., & Knight, S. J. (2002). An experimental investigation of the joint effects of advertising and peers on adolescents' beliefs and intentions about cigarette consumption. *Journal of Consumer Research*, 29(1), 5-19.
- Pederson, L. (1986). Change in variables related to smoking in childhood to late adolescence: An eight year longitudinal study of a cohort of elementary



- school students. *Canadian Journal of Public Health*, 77(May/June, Supplement 1), 33-39.
- Pederson, L. L., Koval, J. J., & O'Connor, K. (1997). Are psychosocial factors related to smoking in Grade 6 students? *Addictive Behaviors*, 22(2), 169-181.
- Pederson, L. L., & Lefcoe, N. M. (1982). Multivariate analysis of variables related to cigarette smoking among children in grades four to six. *Canadian Journal of Public Health*, 73(May/June), 172-175.
- Pederson, L. L., & Lefcoe, N. M. (1985). Cross-sectional analysis of variables related to cigarette smoking in late adolescence. *Journal of Drug Education*, 15(3), 225-240.
- Pederson, L. L., & Lefcoe, N. M. (1986). Change in smoking status among a cohort of late adolescents: Prediction and explanation of initiation, maintenance and cessation. *International Journal of Epidemiology*, 15(4), 519-526.
- Peters, J., Hedley, A. J., Lam, T. H., Betson, C. L., & Wong, C. M. (1997). A comprehensive study of smoking in primary school children in Hong Kong: Implications for prevention. *Journal of Epidemiology and Community Health*, 51, 239-245.
- Petraitis, J., Flay, B. R., & Miller, T. (1995). Reviewing theories of adolescent substance use: Organising pieces in the puzzle. *Psychological Bulletin*, 117(1), 67-86.
- Piaget, J. (1930). *The child's conception of physical causality* (M. Gabain, Trans.). London: Routledge & Kegan Paul Ltd.
- Piaget, J. (1976). Piaget's theory. In P. B. Neubauer (Ed.), *The Process of Child Development* (pp. 164-212). New York: New American Library.
- Pierce, J. P., Choi, W. S., Gilpin, E. A., Farkas, A. J., & Berry, C. C. (1998). Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA*, 279(7), 511-515.

- Pierce, J. P., Evans, N., Farkas, A. J., Cavin, S. W., Berry, C., Kramer, M., et al. (1994). *Tobacco use in California: An evaluation of the Tobacco Control Program 1989-1993*. La Jolla, California: University of California.
- Pierce, J. P., Farkas, A. J., Evans, N., Berry, C., Choi, W., Rosbrook, B., et al. (1993). *Tobacco use in California 1992: A focus on preventing uptake in adolescents*. Sacramento, CA: California Department of Health Services.
- Pierce, J. P., Gilpin, E. A., Burns, D. M., Whalen, E., Rosbrook, B., Shopland, D., et al. (1991). Does tobacco advertising target young people to start smoking? Evidence from California. *JAMA*, 266(22), 3154-3156.
- Piko, B. (2001). Smoking in adolescence: Do attitudes matter? *Addictive Behaviors*, 26(2), 201-217.
- Pinilla, J., Gonzalez, B., Barber, P., & Santana, Y. (2002). Smoking in young adolescents: An approach with multilevel discrete choice models. *Journal of Epidemial Community Health*, 56, 227-232.
- Pollay, R. W. (2000). *How cigarette advertising works: Rich imagery and poor information*. Vancouver: University of British Columbia.
- Pope, C., Ziebland, S., & Mays, N. (2000). Analysing qualitative data. *British Medical Journal*, 320(8 Jan), 114-116.
- Poulton, P. (1973). Cigarette smoking among grammar school girls. *Health Education Journal*, 32(4), 114-117.
- Pritchard, W. S. (1991). The link between smoking and P: A serotonergic hypothesis. *Personality and Individual Differences*, 12(11), 1187-1204.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and process of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51(3), 390-395.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist*, 47(9)(Sept), 1102-1114.

- Pulkki, L., Kivimaki, M., Keltikangas-Jarvinen, L., Elovainio, M., Leino, M., & Viikari, J. (2003). Contribution of adolescent and early adult personality to the inverse association between education and cardiovascular risk behaviours: Prospective population-based cohort study. *International Journal of Epidemiology*, 32(6), 968-975.
- Pulkkinen, L. (1982). The onset and continuity of smoking and drinking in adolescence. *ACTA Psychologica Fennica*, 9, 11-30.
- Pulkkinen, L. (1983). Youthful smoking and drinking in a longitudinal perspective. *Journal of Youth and Adolescence*, 12 (4), 253-283.
- Purcell, I., Lloyd, D., Hards, G., Alexander, H., & Leeder, S. R. (1979). Children and smoking. *Australian Family Physician*, 8(December), 1284-1286.
- Quine, S., & Stephenson, J. A. (1990). Predicting smoking and drinking intentions and behaviour of pre-adolescents: The influence of parents, siblings and peers. *Family Systems Medicine*, 8(2), 191-200.
- QUIT Victoria. (2002). *Youth smoking rates: Selected Australian and international youth smoking rates*. Carlton, Victoria: The Cancer Council Victoria.
- QUIT Victoria. (2004). *Smoking among Australian secondary school students*. Carlton, Victoria: The Cancer Council Victoria.
- Quit WA, & Population Health Division Department of Health WA. (2004). *Cigarette consumption among Western Australian school students in 2002: Results from the 2002 Australian School Students Alcohol and Drug (ASSAD) survey*. Perth: Department of Health WA.
- Raosoft. (2004). Sample size calculator. Seattle, WA.: Raosoft Inc.
- Rawbone, R. G., & Guz, A. (1982). Cigarette smoking among secondary schoolchildren 1975-79. *Archives of Disease in Childhood*, 57, 352-358.
- Reeder, A. I., Williams, S., & McGee, R. (1999). Tobacco smoking among fourth form school students in Wellington, New Zealand, 1991-97. *Australian And New Zealand Journal of Public Health*, 23(5), 494-500.

- Regis, D., & Balding, J. (1988). Smoking and self-esteem. *Education and Health*(September), 61-66.
- Ritchie, J. (1987). Children's knowledge of the health risks of smoking. *New Zealand Medical Journal*(8 April), 220-222.
- Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology*, 91, 93-114.
- Rolison, M. R., & Scherman, A. (2002). Factors influencing adolescents' decisions to engage in risk-taking behavior. *Adolescence*, 37(147), 585-596.
- Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review*, 54(6), 1004-1018.
- Rosenberg, M., Shooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 60(1), 141-156.
- Ross, H. (2002). *Economic determinants of smoking initiation and cessation*: International Tobacco Evidence Network.
- Ross, H., & Chaloupka, F. J. (2002). *Economics of tobacco control*: International Tobacco Evidence Network.
- Ross, H., & Chaloupka, F. J. (2004). The effect of public policies and prices on youth smoking. *Southern Economic Journal*, 70(4), 796-815.
- Royal College of Physicians. (1983). *Health or smoking? Follow-up report of the Royal College of Physicians*. London: Churchill Livingstone.
- Rugkasa, J., Knox, B., Sittlington, J., Kennedy, O., Treacy, M. P., & Abaunza, P. S. (2001). Anxious adults vs. cool children: Children's views on smoking and addiction. *Social Science and Medicine*, 53, 593-602.
- Russell, M. A. H. (1978). Smoking addiction: Some implications for cessation. In J. L. Schwartz (Ed.), *Progress in smoking cessation* (pp. 206-226). New York: American Cancer Society.

- Russell, M. A. H. (1979). Tobacco dependence: Is nicotine rewarding or aversive? In N. A. Krasnegor (Ed.), *Cigarette smoking as a dependence process* (Jan ed., pp. 100-122). Rockville, Maryland: National Institute on Drug Abuse.
- Russell, M. A. H. (1990). The nicotine addiction trap: A 40 year sentence for four cigarettes. *British Journal of Addiction*, *85*, 293-300.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist*, *55*(1), 68-78.
- Ryan, R. M., Plant, R. W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement and dropout. *Addictive Behaviors*, *20*(3), 279-297.
- Sabol, S. Z., Nelson, M. L., Fisher, C., Gunzerath, L., Brody, C. L., Hu, S., et al. (1999). A genetic association for cigarette smoking behavior. *Health Psychology*, *18*(1), 7-13.
- Salber, E. J., MacMahon, B., & Welsh, B. (1962). Smoking habits of high school students related to intelligence and achievement. *Pediatrics*, *29*(May), 780-787.
- Salber, E. J., Welsh, B., & Taylor, S. V. (1963). Reasons for smoking given by secondary school children. *Journal of Health and Human Behavior*, *4*, 118-129.
- Sanson-Fisher, R. W., Schofield, M. J., & See, M. (1992). Availability of cigarettes to minors. *Australian Journal of Public Health*, *16*(4), 354-359.
- Sargent, J. D., Mott, L. A., & Stevens, M. (1998). Predictors of smoking cessation in adolescents. *Archives of Pediatrics & Adolescent Medicine*, *152* (4)(April), 388-393.
- Schiaffino, A., Fernandez, E., Borrell, C., Slato, E., Garcia, M., & Borrás, J. M. (2003). Gender and educational differences in smoking initiation rates in Spain from 1948 to 1992. *European Journal of Public Health*, *13*(1), 56-61.

- Schofield, M. J., Sanson-Fisher, R. W., & Gulliver, S. (1997). Interventions with retailers to reduce cigarette sales to minors: A randomised controlled trial. *Australian And New Zealand Journal of Public Health, 21*(6), 590-596.
- Schofield, P. E., Pattison, P. E., Hill, D. J., & Borland, R. (2001). The influence of group identification on the adoption of peer group smoking norms. *Psychology and Health, 16*, 1-16.
- Scragg, R., Laugesen, M., & Robinson, E. (2003). Parental smoking and related behaviours influence adolescent tobacco smoking: Results from the 2001 New Zealand national survey of 4th form students. *Journal of the New Zealand Medical Association, 116*(1187), 18-31.
- Sekaran, U. (2003). *Research methods for business - A skill building approach* (4th ed.). New York: John Wiley & Sons Inc.
- Selin, H., Martin, J. P., Peruga, A., & WHO Regional Office for the Americas. (2003). Regional summary for the region of the Americas. In O. Shafey, S. Dolwick & G. E. Guindon (Eds.), *Tobacco control country profiles (2nd edition)* (pp. 32-33). Helsinki: The American Cancer Society, World Health Organization and International Union Against Cancer.
- Semmer, N. K., Cleary, P. D., Dwyer, J. H., Fuchs, R., & Lippert, P. (1987). Psychosocial predictors of adolescent smoking in two German cities: The Berlin-Bermen study. *Morbidity and Mortality Weekly Reports, 36*(4S), 3-10.
- Semmer, N. K., Dwyer, J. H., Lippert, P., Fuchs, R., Cleary, P. D., & Schindler, A. (1987). Adolescent smoking from a functional perspective: The Berlin-Bremen study. *European Journal of Psychology of Education, 11*(4), 387-402.
- Shedler, J., & Block, J. (1990). Adolescent drug use and psychological health - A longitudinal inquiry. *American Psychologist*(May), 612-630.
- Simantov, E., Schoen, C., & Klein, J. D. (2000). Health-compromising behaviors: Why do adolescents smoke or drink? *Archives of Pediatrics & Adolescent Medicine, 154*(Oct), 1025-1033.

- Simpson, J. M., Klar, N., & Donner, A. (1995). Accounting for cluster randomization: A review of primary prevention trials 1990 through 1993. *American Journal of Public Health, 85*(10), 1378-.
- Sin, L. (1997). Cigarette advertising and juvenile smoking behaviour: A Hong Kong study. *Singapore Management Review, 19*(1), 47-60.
- Skinner, W. F., Massey, J. L., Krohn, M. D., & Lauer, R. M. (1985). Social influences and constraints on the initiation and cessation of adolescent tobacco use. *Journal of Behavioral Medicine, 8* (4), 353-376.
- Slovic, P. (2000). What does it mean to know a cumulative risk? Adolescents' perceptions of short-term and long-term consequences of smoking. *Journal of Behavioral Decision Making, 13*, 259-266.
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1978). Accident probabilities and seat belt usage: A psychological perspective. *Accident Analysis and Prevention, 10*, 281-285.
- Smith, K. H., & Stutts, M. A. (1999). Factors that influence adolescents to smoke. *The Journal of Consumer Affairs, 33*(2), 321-357.
- Soldz, S., & Dorsey, E. (2005). Youth attitudes and beliefs toward alternative tobacco products: Cigars, bidis and kreteks. *Health Education and Behavior, 32*(4), 549-566.
- Soteriades, E., DiFranza, J. R., Savageau, J. A., & Nicolaou, M. (2003). Symptoms of nicotine dependence and other predictors of student smoking at school: Implications for school smoking policy. *The Journal of School Health, 73*(4), 154-158.
- Soteriades, E. S., & DiFranza, J. R. (2003). Parents' socioeconomic status, adolescents' disposable income and adolescents' smoking status in Massachusetts. *American Journal of Public Health, 93*(7), 1155-1161.
- Soulos, G., & Sander, S. (2004). Promoting tobacco to the young in the age of advertising bans. *NSW Public Health Bulletin, 15*(5-6), 104-106.

- Spielberger, C. D., & Jacobs, G. A. (1982). Personality and smoking behavior. *Journal of Personality Assessment*, 46, 396-403.
- Stanton, W. R., McClelland, M., Elwood, C., Ferry, D., & Silva, P. A. (1996). Prevalence, reliability and bias of adolescents' reports of smoking and quitting. *Addiction*, 91(11), 1705-1714.
- Statsoft. (2004). *Electronic statistics textbook*, from <http://www.statsoft.com/textbook/stathome.html>
- Strecher, V. J., & Rosenstock, I. M. (1997). The health belief model. In K. Glanz, F. M. Lewis & B. K. Rimer (Eds.), *Health Behaviour and Health Education* (pp. 41-59). San Francisco: Jossey-Bass Inc.
- Sun, D., Anderson, M., Shah, A., & Julliard, K. (1998). Early adolescents' perceptions of cigarette smoking: A cross-sectional survey in a junior high school. *Adolescence*, 33(132), 805-810.
- Sussman, S., Dent, C. W., Stacy, A. W., Burton, D., & Flay, B. R. (1995). Psychosocial predictors of health risk factors in adolescents. *Journal of Pediatric Psychology*, 20(1), 91-108.
- Sutton, S. (2004). Health behavior: Psychosocial theories. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 6499-6506). New York, USA: Elsevier.
- Swadi, H. (1990). Validating and improving the validity of self-reports in adolescent substance misuse surveys. *The Journal of Drug Issues*, 20(3), 473-486.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (4th ed.). California: HarperCollins College Publishers.
- Tang, K. C., Rissel, C., Bauman, A., Fay, J., Porter, S., Dawes, A., et al. (1998). A longitudinal study of smoking in Year 7 and 8 students speaking English or a language other than English at home in Sydney, Australia. *Tobacco Control*, 7, 35-40.



- Taylor, M., Dlamini, S. B., Kagoro, H., Jinabhai, C. C., & de Vries, H. (2003). Understanding high school students' risk behaviors to help reduce the HIV/AIDS epidemic in KwaZulu-Natal, South Africa. *The Journal of School Health, 73*(3), 97-100.
- Thies, K. M., & Walsh, M. E. (1999). A developmental analysis of cognitive appraisal of stress in children and adolescents with chronic illness. *Children's Health Care., 28*(1)(Win), 15-32.
- Thorlindsson, T., & Vilhjalmsson, R. (1991). Factors related to cigarette smoking and alcohol use among adolescents. *Adolescence, 26*(102), 399-418.
- Thun, M. J., & Costa, V. L. (2003). Introduction and overview of global tobacco surveillance. In O. Shafey, S. Dolwick & G. E. Guindon (Eds.), *Tobacco control country profiles (2nd edition)* (pp. 7-12). Helsinki: The American Cancer Society, World Health Organization and International Union Against Cancer.
- Torabi, M. R., Bailey, W., & Majd-Jabbari, M. (1993). Cigarette smoking as a predictor of alcohol and other drug use by children and adolescents: Evidence of the "Gateway Drug Effect". *Journal of School Health, 63*(7), 302-306.
- Trotter, L. (1998). *Survey of smoking beliefs and behaviour in Greek and Chinese communities*. Melbourne, Vic.: Centre for Behavioural Research in Cancer.
- Tuakli, N., Smith, M. A., & Heaton, C. (1990). Smoking in adolescence: Methods for health education and smoking cessation, a MIRNET study. *Journal of Family Practice, 31*(4), 369-375.
- Tucker, A. (1987). Elementary school children and cigarette smoking: A review of the literature. *Health Education*(June/July), 18-27.
- Turbin, M. S., Jessor, R., & Costa, F. M. (2000). Adolescent cigarette smoking: Health-related behavior or normative transgression? *Prevention Science, 1*(3), 115-124.

- Tyas, S. L., & Pederson, L. L. (1998). Psychosocial factors related to adolescent smoking: A critical review of the literature. *Tobacco Control*, 7, 409-420.
- Urberg, K. A. (1999). Some thoughts about studying the influence of peers on children and adolescents. *Merrill-Palmer Quarterly*, 45 (1)(January), 1-12.
- US Department of Health and Human Services. (1988). *The health consequences of smoking - Nicotine addiction: A report of the Surgeon General*. Rockville: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- US Department of Health and Human Services. (1994). *Preventing tobacco use among young people: A report of the Surgeon General*. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- Utech, D. A., & Hoving, K. L. (1969). Parents and peers as competing influences in the decisions of children of differing ages. *The Journal of Social Psychology*, 78, 267-274.
- van der Pligt, J. (1998). Perceived risk and vulnerability as predictors of precautionary behaviour. *British Journal of Health Psychology*, 3, 1-14.
- van Reek, J., Adriaanse, H., & Aaro, L. E. (1990). *Smoking by school children in eleven European countries*. Paper presented at the Seventh World Conference on Tobacco and Health, Perth, Western Australia.
- Virgili, M., Owen, N., & Severson, H. H. (1991). Adolescents' smoking behavior and risk perceptions. *Journal of Substance Abuse*, 3, 315-324.
- Walsh, M. E., & Bibace, R. (1991). Children's conceptions of AIDS: A developmental analysis. *Journal of Pediatric Psychology*, 16(3), 273-285.
- Wang, C., & Henley, N. (2001, 1 - 5 December). *Why do children change their minds about smoking? Child development theory applied to social*

- marketing practice*. Paper presented at the ANZMAC Conference - Bridging Marketing Theory And Practice, Auckland, New Zealand.
- Wang, M. Q., Fitzhugh, E., Cowdery, J. E., & Trucks, J. (1995). Developmental influences of attitudes and beliefs on adolescents' smoking. *Psychological Reports, 76*, 399-402.
- Wang, M. Q., Fitzhugh, E. C., Eddy, J., & Westerfield, R. C. (1996). Attitudes and Beliefs of Adolescents Experimental Smokers: A Smoking Prevention Perspective. *Journal of Alcohol and Drug Education, 41*(3), 1-12.
- Weinstein, N. D. (1982). Unrealistic optimism about susceptibility to health problems. *Journal of Behavioural Medicine, 5* (4), 441-460.
- Weinstein, N. D. (1988). The precaution adoption process. *Health Psychology, 7*(4), 355-386.
- Weinstein, N. D. (1989). Optimistic biases about personal risks. *Science, 246*(8 Dec), 1232-1233.
- Weinstein, N. D., & Klein, W. M. (1995). Resistance of personal risk perceptions to debiasing interventions. *Health Psychology, 14*(2), 132-140.
- Weinstein, N. D., & Klein, W. M. (1996). Unrealistic optimism: Present and future. *Journal of Social and Clinical Psychology, 15*(1), 1-8.
- Weinstein, N. D., & Nicolich, M. (1993). Correct and incorrect interpretations of correlations between risk perceptions and risk behaviors. *Health Psychology, 12*(3), 235-245.
- Welte, J. W., & Barnes, G. M. (1987). Youthful smoking: Patterns and relationships to alcohol and other drug use. *Journal of Adolescence, 10*, 327-340.
- West, P., & Michell, L. (1999). Smoking and peer influence. In A. J. Goreczny & M. Hersen (Eds.), *Handbook of Pediatric & Adolescent Health Psychology* (pp. 179-202). Needham Heights, MA, US: Allyn & Bacon Inc.

- White, V., & Hayman, J. (2004a). *Australian secondary students' use of alcohol in 2002: National Drug Strategy Monograph Series No.55*. Canberra: Australian Government Department of Health and Ageing.
- White, V., & Hayman, J. (2004b). *Australian secondary students' use of over-the-counter and illicit substances in 2002: National Drug Strategy Monograph Series No.56*. Canberra: Australian Government Department of Health and Ageing.
- White, V., & Hayman, J. (2004c). *Smoking behaviours of Australian secondary students in 2002. National Drug Strategy Monograph Series No.54*. Canberra: Australian Government Department of Health and Aging.
- WHO Regional Office for Europe. (2003). Regional summary for the European region. In O. Shafey, S. Dolwick & G. E. Guindon (Eds.), *Tobacco control country profiles (2nd edition)* (pp. 36-37). Helsinki: The American Cancer Society, World Health Organization and International Union Against Cancer.
- Wijatkowski, S., Forgas, D. G., Wrzesniewski, K., & Gorski, T. (1990). Smoking behavior and personality characteristics in Polish adolescents. *The International Journal of the Addictions, 25*(4), 363-373.
- Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology, 70*(1), 115-126.
- Williams, G. C., Minicucci, D. S., Kouides, R. W., Levesque, C. S., Chirkov, V. I., Ryan, R. M., et al. (2002). Self-determination, smoking, diet and health. *Health Education Research, 17*(5), 512-521.
- Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychology, 17*(3), 269-276.
- Williams, J., & Covington, J. (1997). Predictors of Cigarette Smoking Among Adolescents. *Psychological Reports, 80*, 481-482.

- Wills, T. A. (2004). Adolescent health and health behaviors. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 105-112). New York, USA: Elsevier.
- Wills, T. A., & Cleary, S. D. (1997). The validity of self-reports of smoking: Analyses by race/ethnicity in a school sample of urban adolescents. *American Journal of Public Health, 87* (1), 56-61.
- Winefield, H. R., Winefield, A. H., Tiggemann, M., & Goldney, R. D. (1989). Psychological concomitants of tobacco and alcohol use in young Australian adults. *British Journal of Addiction, 84*, 1067-1073.
- Winge, E. S. (2003). Effects of a smoking prevention simulation on students' smoking attitudes. *American Journal of Health Studies, 18*(2/3), 92-96.
- Winstanley, M. H., Woodward, S. D., & Walker, N. (1995). *Tobacco in Australia: Facts & Issues* (2nd ed.). Carlton South: Victorian Smoking and Health Program (QUIT Victoria).
- Winter, A. L., de Guia, N. A., Ferrence, R., & Cohen, J. E. (2002). The relationship between body weight perceptions, weight control behaviours and smoking status among adolescents. *Canadian Journal of Public Health, 93*(5), 362-365.
- Wood, L. (1999). *Preventing teenage smoking: What works best - A review of international behavioural interventions relevant to efforts to reduce smoking among young people*. Perth: The Westralian Smarter Than Smoking Project.
- World Health Organization. (1998). *Tobacco use among young people*. Geneva: World Health Organisation.
- World Health Organization. (2000). The WHO cross-national study on health behavior in school-aged children from 28 countries: Findings from the United States. *The Journal of School Health, 70*(6), 227-228.
- World Health Organization. (2005a). *Tobacco*. Manila: WHO Regional Office for the Western Pacific (WPRO).

- World Health Organization. (2005b). *Why is tobacco a public health priority?* Geneva: Tobacco Free Initiative, WHO/Noncommunicable Disease and Mental Health.
- Wright, D. R., & Fitzpatrick, K. M. (2004). Psychosocial correlates of substance use behaviors among African American youth. *Adolescence*, 39(156), 653-667.
- Yaffee, R. A. (2003). *Common correlation and reliability analysis with SPSS for Windows*. Retrieved 14 Jun, 2005, from <http://www.nyu.edu/its/socsci/Docs/correlate.html>
- Yamaguchi, K., & Kandel, D. B. (1984a). Patterns of drug use from adolescence to young adulthood: II. Sequences of progression. *American Journal of Public Health*, 74(7), 668-672.
- Yamaguchi, K., & Kandel, D. B. (1984b). Patterns of drug use from adolescence to young adulthood: III. Predictors of progression. *American Journal of Public Health*, 74 (7)(July), 673-681.
- Young, M., Denny, G., Donnelly, J., Rodriguez, M., & Hawkins, M. (2002). Area specific self-esteem and sexual behavior among Hispanic middle school students. *American Journal of Health Education*, 33(6), 344-349.
- Young, M., Denny, G., & Spear, C. (1999). Area specific self-esteem and adolescent sexual behavior. *American Journal of Health Studies*, 15(4), 181-188.
- Young, M., Donnelly, J., & Denny, G. (2004). Area specific self-esteem, values and adolescent sexual behavior. *American Journal of Health Education*, 35(5), 282-289.
- Zikmund, W. G. (1997). *Business research methods* (5th ed.). Fort Worth, Texas: The Dryden Press.
- Zimmerman, M. A., Copeland, L. A., Shope, J. T., & Dielman, T. E. (1997). A longitudinal study of self-esteem: Implications for adolescent development. *Journal of Youth and Adolescence*, 26(2), 117-142.

## **APPENDICES**

---

# HELLO!

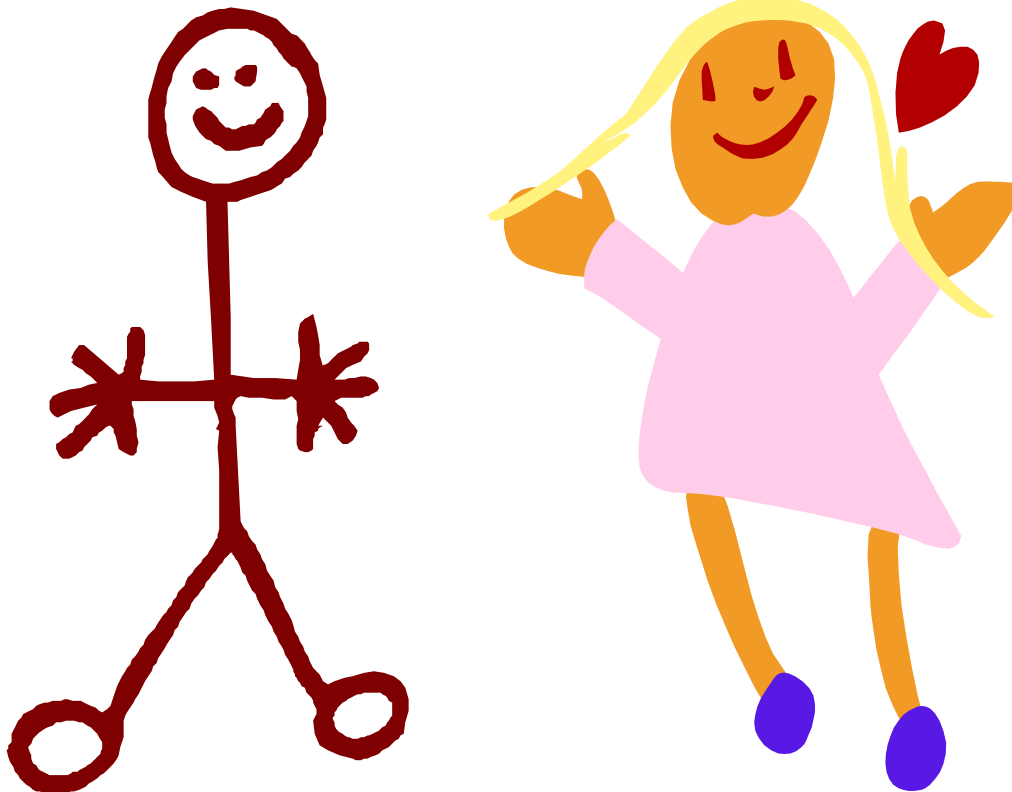
We've got some questions to ask you about young people and smoking. This is not a test so there are no wrong answers!

Don't try to remember your lessons from school, we really just want to know what **YOU** think and feel about young people and smoking.

Some questions might ask whether you smoke or not. You can be honest because we promise not to show your answers to anybody else so you won't get in trouble! You don't even need to write your name anywhere!

Follow the instructions, they'll tell you what to do. Most of the time, all you have to do is read the questions and tick a box to answer.

# THANKS!





**Question 1:**

**For people who like these things, which can they get addicted to?**

(Tick a box to answer)

If 'yes', how strong can the addiction be?

(Answer all ↓)	Yes	No	Don't Know	Very Strong	Strong	Weak	Very Weak
(a) Alcohol							
(b) Drugs							
(c) Chocolates							
(d) Cigarettes							
(e) Fast foods							
(f) Gambling							
(g) Playing sports							
(h) Soft drinks							
(i) TV							
(j) Playing video games							

**Question 2:**

For people who like these things, which do you think would be hardest to stop doing?

(Choose ↓)

(Rank & write your answer here ↓)

- (a) Alcohol
- (b) Drugs
- (c) Chocolates
- (d) Cigarettes
- (e) Fast foods
- (f) Gambling
- (g) Playing sports
- (h) Soft drinks
- (i) TV
- (j) Playing video games

2a: The very hardest thing to stop is \_\_\_\_\_.

2b: What would be the next hardest thing to stop?

The next hardest thing is \_\_\_\_\_.

2c: What would be the 3<sup>rd</sup> hardest thing to stop?

The 3rd hardest thing is \_\_\_\_\_.

About Yourself: →

Are you a...    Boy?                      Girl?

Which year were you born in? \_\_\_\_\_

**Question 3:**

For people who like these things, which do you think would be easiest to get addicted to?

(Choose ↓)

- (a) Alcohol
- (b) Drugs
- (c) Chocolates
- (d) Cigarettes
- (e) Fast foods
- (f) Gambling
- (g) Playing sports
- (h) Soft drinks
- (i) TV
- (j) Playing video games

(Rank & write your answer here ↓)

**3a: The very easiest to get addicted to is \_\_\_\_\_.**

**3b: What would be the next easiest to get addicted to?**

The next easiest is \_\_\_\_\_.

**3c: What would be the 3<sup>rd</sup> easiest to get addicted to?**

The 3rd easiest is \_\_\_\_\_.

About Yourself:



Which Year of school are you in?

Year 4	Year 5	Year 6
Year 7	Year 8	Year 9

**Question 4:**

Which of these things do you think would be most dangerous to be addicted to?

(Choose ↓)

- (a) Alcohol
- (b) Drugs
- (c) Chocolates
- (d) Cigarettes
- (e) Fast foods
- (f) Gambling
- (g) Playing sports
- (h) Soft drinks
- (i) TV
- (j) Playing video games

(Rank & write your answer here ↓)

**4a:** The most dangerous thing to be addicted to is \_\_\_\_\_.

**4b:** What would be the next most dangerous thing?

The next most dangerous thing is \_\_\_\_\_.

**4c:** What would be the 3<sup>rd</sup> most dangerous thing?

The 3rd most dangerous thing is \_\_\_\_\_.

About Yourself:



Have you had any lessons in school on smoking?	Yes	No
Have you had any lessons in school on cigarette addiction?	Yes	No

**Question 5: What do you think is the single main reason that grown ups smoke?**

Tick <u>ONLY 1</u> Box	
	Grown ups smoke mainly because their friends smoke
	Grown ups smoke mainly because they are stressed
	Grown ups smoke mainly because they want to look cool
	Grown ups smoke mainly because they are addicted

**Question 6a: What do you think is the single main reason that kids smoke?**

Tick <u>ONLY 1</u> Box	
	Kids smoke mainly because their friends smoke
	Kids smoke mainly because they are stressed
	Kids smoke mainly because they are addicted
	Kids smoke mainly because they want to look cool

**Question 6b: What is another main reason why kids smoke?**

Tick <u>ONLY 1</u> Box	
	Kids smoke mainly because their friends smoke
	Kids smoke mainly because they are stressed
	Kids smoke mainly because they are addicted
	Kids smoke mainly because they want to look cool

**Question 7: What do you think is the single worst or most bad thing about smoking cigarettes?**

Tick <u>ONLY 1</u> Box	
	It makes your teeth brown and gives you bad breath
	It makes you unfit to play sports and games
	It is very disgusting
	It is bad for your health
	You make everything smell of smoke
	You have to spend a lot of money on cigarettes

**Question 8a: When you say someone is addicted to smoking, it mainly means that...**

Tick <u>ONLY 1</u> Box	
	They smoke automatically without thinking
	They get used to smoking when doing things
	They enjoy smoking
	They have a craving to keep smoking
	They like the taste of smoking
	When they see people smoking, then they just want to smoke too
	They have no control over their smoking

**Question 8b: When you say someone is addicted to smoking, what else does it mean?**

Tick <u>ONLY 1</u> Box	
	They smoke automatically without thinking
	They get used to smoking when doing things
	They enjoy smoking
	They have a craving to keep smoking
	They like the taste of smoking
	When they see people smoking, then they just want to smoke too
	They have no control over their smoking

**Question 9a: What do you think is the single main reason people get addicted to smoking?**

Tick <u>ONLY 1</u> Box	
	Because cigarettes have a drug in them that makes people can't stop smoking
	Because people enjoy having cigarettes and so they don't want to stop smoking
	Because cigarettes have got nicotine in them and that makes people can't stop smoking
	Because people like the taste of cigarettes and so they don't want to stop smoking
	Because cigarettes have got lots of chemicals and poisons in them that make people can't stop smoking
	Because people get used to smoking when doing things

**Question 9b: What is another main reason people get addicted to smoking?**

Tick <u>ONLY 1</u> Box	
	Because cigarettes have a drug in them that makes people can't stop smoking
	Because people enjoy having cigarettes and so they don't want to stop smoking
	Because cigarettes have got nicotine in them and that makes people can't stop smoking
	Because people like the taste of cigarettes and so they don't want to stop smoking
	Because cigarettes have got lots of chemicals and poisons in them that make people can't stop smoking
	Because people get used to smoking when doing things

**Question 10: Carefully read each line below and tick the box next to the one that best describes YOU.**

Tick <u>ONLY 1</u> Box	
	I have never smoked (If you tick this box, please go to Question 11 now)
	I have only ever tried smoking once (If you tick this box, please go to Question 11 now)
	I used to smoke sometimes but I never smoke a cigarette now (If you tick this box, please go to Question 11 now)
	I sometimes smoke cigarettes now but I smoke less than 1 a week (If you tick this box, please go to Question 16 now)
	I usually smoke between 1 and 6 cigarettes a week (If you tick this box, please go to Question 16 now)
	I usually smoke more than 6 cigarettes a week but less than 20 (If you tick this box, please go to Question 16 now)
	I usually smoke 20 to 40 cigarettes a week (If you tick this box, please go to Question 16 now)
	I usually smoke more than 40 cigarettes a week (If you tick this box, please go to Question 16 now)

**Question 11: Just to check, read the lines below carefully and tick the box next to the one that best describes you.**

Tick <u>ONLY 1</u> Box	
	I have never tried smoking a cigarette, not even a puff or two (If you tick this box, please go to Question 12 now)
	I did once have a puff or two of a cigarette but I never smoke now (If you tick this box, please go to Question 12 now)
	I do sometimes smoke cigarettes (If you tick this box, please go to Question 16 now)



**Question 12: Since you don't smoke now, do you think you might like to try it just to see what smoking is like?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 13: Would you like to take up smoking when you are older?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 14a: What do you think would be the single main reason that you don't smoke now?**

Tick <u>ONLY 1</u> Box	
	I think cigarettes are too expensive
	I'm too young to buy cigarettes now
	I think smoking is bad for my health
	I don't want to become addicted
	My boyfriend/girlfriend doesn't want me to smoke
	My brothers/sisters don't want me to smoke
	My friends don't want me to smoke
	My parents don't want me to smoke
	My teacher/principal doesn't want me to smoke



**Question 16: Do you think you will still be smoking next year?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 17: Do you think you will still smoke when you are grown up?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 18: Have you ever tried to stop smoking for good?**

Tick <u>ONLY 1</u> Box	
Yes	No

**Question 19: If you wanted to quit smoking for good, how easy or hard would it be for you?**

Tick <u>ONLY 1</u> Box			
Very easy	Easy	Hard	Very hard

**Question 20a: What do you think is the single main reason that could make you want to quit smoking?**

Tick <u>ONLY 1</u> Box	
	I think cigarettes are too expensive
	I think smoking is bad for my health
	I don't want to become addicted
	My boyfriend/girlfriend wants me to stop
	My brothers/sisters want me to stop
	My friends want me to stop
	My parents want me to stop
	My teacher/principal wants me to stop

**Question 20b: What is another main reason that could make you want to quit smoking?**

Tick <u>ONLY 1</u> Box	
	I think cigarettes are too expensive
	I think smoking is bad for my health
	I don't want to become addicted
	My boyfriend/girlfriend wants me to stop
	My brothers/sisters want me to stop
	My friends want me to stop
	My parents want me to stop
	My teacher/principal wants me to stop

**Question 21: If you wanted to quit smoking now, do you think you would succeed?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 22: If you had to go without smoking for a whole week, how easy or hard would it be for you?**

Tick <u>ONLY 1</u> Box			
Very easy	Easy	Hard	Very hard

**Question 23: When you first started smoking, were you worried that you might become addicted?**

Tick <u>ONLY 1</u> Box		
Yes	No	I didn't think about this

**Question 24: Are you worried now that you might become addicted?**

Tick <u>ONLY 1</u> Box		
Yes	No	I don't think about this

**Question 25: What do you think is the single worst or most bad thing about being addicted to smoking?**

Tick <u>ONLY 1</u> Box	
	You smoke more than you want to
	You get a craving in your body
	You feel bad when you can't have a cigarette
	You get in trouble at home for smoking
	You get in trouble at school for smoking
	You have no control over smoking

**Question 26: Who do you think can get addicted to smoking?**

Tick <u>ONLY 1</u> Box	
	<u>All</u> smokers can get addicted
	Only grown ups who smoke can get addicted (but not kids who smoke)
	Only kids who smoke can get addicted (but not grown ups who smoke)
	I don't think <u>any</u> smokers can get addicted

**Question 27: Can you stop getting addicted by not letting yourself enjoy smoking?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 28: Can you stop getting addicted by not letting yourself like the taste of smoking?**

Tick <u>ONLY 1</u> Box		
Yes	Maybe	No

**Question 29: Whether or not you get addicted to smoking depends on...**

Tick <u>ONLY</u> <u>1</u> Box	Depends on <u>how many cigarettes</u> you smoke	→	How many must you smoke to get addicted? Answer: _____
	Depends on <u>how many times</u> you smoke	→	How many times must you smoke to get addicted? Answer: _____
	Depends on <u>how long</u> you've been smoking	→	How long must you smoke to get addicted? Answer: _____

**Question 30: When grown ups say they are addicted to cigarettes, do you think it is mostly just an excuse so that they don't have to quit smoking or are they really addicted?**

Tick <u>ONLY 1</u> Box	It is just an excuse
	They are really addicted

**Question 31: When kids say they are addicted to cigarettes, do you think it is mostly just an excuse so that they can feel grown up or are they really addicted?**

Tick <u>ONLY 1</u> Box	It is just an excuse
	They are really addicted

**Question 32: Would you say that...**

Tick <u>ONLY 1</u> Box	
	Addiction is <u>all in your mind</u> - you just <u>think</u> that you need cigarettes (even though you really don't)
OR	
	Addiction happens <u>in your body</u> - if you are addicted, your <u>body</u> needs cigarettes to keep going

**Question 33: When do you think addiction to smoking happens?**

Tick <u>ONLY 1</u> Box	
	Addiction happens when people smoke all the time
	Addiction happens when people smoke sometimes or occasionally
	Addiction happens when people smoke just once

**Question 34: If grown ups and kids smoke the same amount, do you think it is easier or harder for grown ups to get addicted to cigarettes than kids?**

Tick <u>ONLY 1</u> Box	
	Harder for grown ups to <u>get addicted</u> than kids
	Easier for grown ups to <u>get addicted</u> than kids
	Same for both

**Question 35: If both grown ups and kids smoke the same amount, do you think it would be easier or harder for grown ups to quit smoking than kids?**

Tick <u>ONLY 1</u> Box	
	Harder for grown ups to <u>quit</u> than kids
	Easier for grown ups to <u>quit</u> than kids
	Same for both

**Is there anything you want to say about smoking and addiction?  
You can write your comments on the front cover.**

**THE  
END**

*Appendix Table 5.1*  
*Perceptions of General Addictiveness x Sex*

Item	Addictive?	Sex		Total
		Boy %	Girl %	%
Alcohol	Yes	(n = 146) 84	(n = 141) 83	(n = 287) 84
	No	14	9	12
	Don't Know	1	8	4
	Total	100	100	100
Chocolates	Yes	(n = 144) 76	(n = 142) 74	(n = 286) 75
	No	15	14	14
	Don't Know	9	12	11
	Total	100	100	100
Cigarettes	Yes	(n = 144) 89	(n = 142) 94	(n = 286) 92
	No	10	5	7
	Don't Know	1	1	1
	Total	100	100	100
Drugs	Yes	(n = 146) 86	(n = 142) 88	(n = 288) 87
	No	10	9	9
	Don't Know	4	3	4
	Total	100	100	100
Fast Foods	Yes	(n = 143) 51	(n = 141) 51	(n = 284) 51
	No	37	27	32
	Don't Know	12	22	17
	Total	100	100	100
Gambling	Yes	(n = 145) 81	(n = 140) 83	(n = 285) 82
	No	16	9	12
	Don't Know	3	8	6
	Total	100	100	100
Soft Drinks	Yes	(n = 144) 51	(n = 142) 43	(n = 286) 47
	No	38	35	67
	Don't Know	11	22	16
	Total	100	100	100
Playing Sports	Yes	(n = 146) 43	(n = 141) 34	(n = 287) 39
	No	45	51	48
	Don't Know	12	15	13
	Total	100	100	100



*Appendix Table 5.1 (con't)*  
*Perceptions of General Addictiveness x Sex*

Item	Addictive?	Sex		Total %
		Boy %	Girl %	
Watching TV	Yes	(n = 147) 74	(n = 142) 67	(n = 289) 70
	No	20	20	20
	Don't Know	6	13	10
	Total	100	100	100
Video Games	Yes	(n = 146) 69	(n = 139) 64	(n = 285) 67
	No	23	21	22
	Don't Know	8	15	11
	Total	100	100	100

Appendix Table 5.2  
Perceptions of General Addictiveness x School Year

Item	Addictive?	School Year				
		Year 4 %	Year 5 %	Year 6 %	Year 7 %	Total %
Alcohol		(n = 71)	(n = 69)	(n = 74)	(n = 73)	(n = 287)
	Yes	78	74	88	95	84
	No	11	20	10	5	12
	Don't Know	11	6	2	-	4
	Total	100	100	100	100	100
Drugs		(n = 73)	(n = 69)	(n = 73)	(n = 73)	(n = 289)
	Yes	86	80	89	95	88
	No	10	15	7	5	9
	Don't Know	4	5	4	-	3
	Total	100	100	100	100	100
Cigarettes		(n = 70)	(n = 68)	(n = 74)	(n = 73)	(n = 284)
	Yes	93	87	91	95	91
	No	6	12	7	5	7
	Don't Know	1	1	2	-	2
	Total	100	100	100	100	100
Gambling		(n = 70)	(n = 67)	(n = 75)	(n = 73)	(n = 285)
	Yes	73	76	83	95	82
	No	16	21	12	1	12
	Don't Know	11	3	5	4	6
	Total	100	100	100	100	100
Chocolates		(n = 70)	(n = 71)	(n = 72)	(n = 72)	(n = 287)
	Yes	74	72	74	81	75
	No	16	20	8	14	14
	Don't Know	10	8	18	5	11
	Total	100	100	100	100	100
Fast Foods		(n = 70)	(n = 68)	(n = 72)	(n = 73)	(n = 283)
	Yes	50	38	51	64	51
	No	39	38	21	32	32
	Don't Know	11	24	28	4	17
	Total	100	100	100	100	100
Soft Drinks		(n = 70)	(n = 70)	(n = 72)	(n = 73)	(n = 285)
	Yes	50	39	44	56	47
	No	34	46	32	34	37
	Don't Know	16	15	24	10	16
	Total	100	100	100	100	100
Playing Sports		(n = 71)	(n = 68)	(n = 73)	(n = 74)	(n = 286)
	Yes	51	41	36	28	39
	No	39	46	44	62	48
	Don't Know	10	13	20	10	13
	Total	100	100	100	100	100

*Appendix Table 5.2 (con't)*  
*Perceptions of General Addictiveness x School Year*

Item	Addictive?	School Year				
		Year 4 %	Year 5 %	Year 6 %	Year 7 %	Total %
Watching TV		(n = 71)	(n = 70)	(n = 73)	(n = 74)	(n = 288)
	Yes	80	71	67	64	71
	No	9	17	21	31	19
	Don't Know	11	12	12	5	10
	Total	100	100	100	100	100
Video Games		(n = 70)	(n = 70)	(n = 73)	(n = 73)	(n = 286)
	Yes	70	61	64	71	67
	No	20	29	14	25	22
	Don't Know	10	10	22	4	11
	Total	100	100	100	100	100

*Appendix Table 5.3*  
*Perceptions of Addictive Strength x Sex*

Item	Addictive Strength	Sex		Total %
		Boy %	Girl %	
Alcohol	Very Strong	(n = 129) 51	(n = 123) 40	(n = 252) 45
	Strong	37	50	43
	Weak	9	8	9
	Very Weak	3	2	3
	Total	100	100	100
Drugs	Very Strong	(n = 130) 77	(n = 131) 70	(n = 261) 74
	Strong	16	24	20
	Weak	5	4	4
	Very Weak	2	2	2
	Total	100	100	100
Cigarettes	Very Strong	(n = 130) 75	(n = 131) 79	(n = 261) 77
	Strong	20	18	19
	Weak	3	2	2
	Very Weak	2	1	2
	Total	100	100	100
Chocolates	Very Strong	(n = 119) 21	(n = 112) 21	(n = 231) 21
	Strong	35	40	37
	Weak	31	33	32
	Very Weak	13	6	10
	Total	100	100	100
Fast Foods	Very Strong	(n = 100) 16	(n = 91) 9	(n = 191) 12
	Strong	34	42	38
	Weak	39	38	39
	Very Weak	11	11	11
	Total	100	100	100
Gambling	Very Strong	(n = 124) 44	(n = 120) 47	(n = 244) 45
	Strong	38	39	39
	Weak	14	11	13
	Very Weak	4	3	3
	Total	100	100	100
Soft Drinks	Very Strong	(n = 99) 13	(n = 81) 16	(n = 180) 14
	Strong	29	28	29
	Weak	39	38	39
	Very Weak	19	18	18
	Total	100	100	100

*Appendix Table 5.3 (con't)*  
*Perceptions of Addictive Strength x Sex*

Item	Addictive Strength	Sex		Total %
		Boy %	Girl %	
Playing Sports	Very Strong	(n = 91) 21	(n = 72) 20	(n = 163) 20
	Strong	32	26	29
	Weak	24	32	28
	Very Weak	23	22	23
	Total	100	100	100
Watching TV	Very Strong	(n = 114) 30	(n = 100) 26	(n = 214) 28
	Strong	42	43	43
	Weak	18	23	21
	Very Weak	10	8	8
	Total	100	100	100
Video Games	Very Strong	(n = 116) 27	(n = 100) 20	(n = 216) 23
	Strong	35	38	37
	Weak	27	29	28
	Very Weak	11	13	12
	Total	100	100	100

*Appendix Table 5.4*  
*Perceptions of Addictive Strength x School Year*

Item	Addictive Strength	School Year				Total %
		Year 4 %	Year 5 %	Year 6 %	Year 7 %	
Alcohol		(n = 60)	(n = 57)	(n = 67)	(n = 69)	(n = 253)
	Very Strong	37	39	46	57	45
	Strong	52	42	43	38	44
	Weak	10	12	9	4	9
	Very Weak	1	7	2	1	2
	Total	100	100	100	100	100
Drugs		(n = 64)	(n = 58)	(n = 70)	(n = 69)	(n = 261)
	Very Strong	59	59	83	91	74
	Strong	33	28	13	9	20
	Weak	5	10	1	-	4
	Very Weak	3	3	3	-	2
	Total	100	100	100	100	100
Cigarettes		(n = 64)	(n = 59)	(n = 71)	(n = 67)	(n = 261)
	Very Strong	72	75	76	85	77
	Strong	22	19	20	15	19
	Weak	5	1	4	-	3
	Very Weak	1	5	-	-	1
	Total	100	100	100	100	100
Chocolates		(n = 57)	(n = 56)	(n = 58)	(n = 61)	(n = 232)
	Very Strong	26	23	19	15	21
	Strong	46	30	35	39	38
	Weak	21	38	36	33	32
	Very Weak	7	9	10	13	9
	Total	100	100	100	100	100
Fast Foods		(n = 48)	(n = 42)	(n = 47)	(n = 53)	(n = 190)
	Very Strong	19	14	6	9	12
	Strong	35	36	38	42	38
	Weak	35	38	47	38	40
	Very Weak	11	12	9	11	10
	Total	100	100	100	100	100
Gambling		(n = 54)	(n = 56)	(n = 65)	(n = 70)	(n = 245)
	Very Strong	35	36	49	57	45
	Strong	39	36	37	41	38
	Weak	24	18	11	2	13
	Very Weak	2	10	3	-	4
	Total	100	100	100	100	100
Soft Drinks		(n = 48)	(n = 37)	(n = 44)	(n = 47)	(n = 176)
	Very Strong	17	22	7	11	14
	Strong	29	19	32	32	28
	Weak	48	32	34	43	40
	Very Weak	6	27	27	14	18
	Total	100	100	100	100	100

*Appendix Table 5.4 (con't)*  
*Perceptions of Addictive Strength x School Year*

Item	Addictive Strength	School Year				Total %
		Year 4 %	Year 5 %	Year 6 %	Year 7 %	
Playing Sports		(n = 48)	(n = 41)	(n = 40)	(n = 33)	(n = 162)
	Very Strong	31	22	10	15	20
	Strong	25	37	33	24	30
	Weak	23	24	27	36	27
	Very Weak	21	17	30	25	23
	Total	100	100	100	100	100
Watching TV		(n = 57)	(n = 50)	(n = 54)	(n = 53)	(n = 214)
	Very Strong	39	28	20	25	28
	Strong	42	36	39	53	43
	Weak	16	24	24	17	20
	Very Weak	3	12	17	5	9
	Total	100	100	100	100	100
Video Games		(n = 55)	(n = 52)	(n = 53)	(n = 56)	(n = 216)
	Very Strong	29	25	17	25	24
	Strong	35	27	40	45	37
	Weak	26	33	34	18	27
	Very Weak	10	15	9	12	12
	Total	100	100	100	100	100

*Appendix Table 6.1*  
*Perceptions of General Addictiveness x Sex*

Item	Addictive?	Sex %		
		Boy (n = 277)	Girl (n = 279)	Total (n = 556)
Alcohol	Yes	89	91	90
	No	9	5	7
	Don't Know	2	4	3
	Total	100	100	100
Drugs	Yes	90	96	93
	No	8	3	5
	Don't Know	2	1	2
	Total	100	100	100
Chocolates	Yes	69	75	72
	No	25	15	20
	Don't Know	6	10	8
	Total	100	100	100
Cigarettes	Yes	90	97	93
	No	9	3	6
	Don't Know	1	-	1
	Total	100	100	100
Fast Foods	Yes	52	53	52
	No	33	31	32
	Don't Know	15	16	16
	Total	100	100	100
Gambling	Yes	88	94	91
	No	8	3	6
	Don't Know	4	3	3
	Total	100	100	100
Playing Sports	Yes	40	29	35
	No	51	40	46
	Don't Know	9	31	19
	Total	100	100	100
Soft Drinks	Yes	45	43	44
	No	43	34	39
	Don't Know	12	23	17
	Total	100	100	100
Watching TV	Yes	62	57	59
	No	31	26	29
	Don't Know	7	17	12
	Total	100	100	100
Playing Video Games	Yes	72	64	68
	No	22	22	22
	Don't Know	6	14	10
	Total	100	100	100



*Appendix Table 6.2*  
*Perceptions of General Addictiveness x School Year*

Item	Addictive?	School Year			
		Year 8 %	Year 9 %	Year 10 %	Total %
Alcohol		(n = 188)	(n = 186)	(n = 184)	(n = 558)
	Yes	92	89	89	90
	No	7	8	7	7
	Don't Know	1	3	4	3
	Total	100	100	100	100
Drugs		(n = 188)	(n = 187)	(n = 183)	(n = 558)
	Yes	93	91	95	93
	No	6	7	3	5
	Don't Know	1	2	2	2
	Total	100	100	100	100
Cigarettes		(n = 188)	(n = 187)	(n = 183)	(n = 558)
	Yes	93	91	95	93
	No	6	6	4	6
	Don't Know	1	2	1	1
	Total	100	100	100	100
Gambling		(n = 188)	(n = 186)	(n = 183)	(n = 557)
	Yes	92	90	92	91
	No	4	8	4	5
	Don't Know	4	2	4	4
	Total	100	100	100	100
Chocolates		(n = 186)	(n = 185)	(n = 184)	(n = 555)
	Yes	79	71	67	72
	No	16	23	20	20
	Don't Know	5	7	13	8
	Total	100	100	100	100
Fast Foods		(n = 186)	(n = 182)	(n = 182)	(n = 550)
	Yes	57	51	50	52
	No	31	34	32	32
	Don't Know	12	15	18	16
	Total	100	100	100	100
Soft Drinks		(n = 188)	(n = 180)	(n = 184)	(n = 552)
	Yes	45	42	45	44
	No	40	34	42	39
	Don't Know	15	24	13	18
	Total	100	100	100	100
Playing Sports		(n = 186)	(n = 182)	(n = 182)	(n = 550)
	Yes	32	37	35	35
	No	50	41	47	46
	Don't Know	18	22	18	20
	Total	100	100	100	100

*Appendix Table 6.2 (con't)*  
*Perceptions of General Addictiveness x School Year*

Item	Addictive?	School Year			
		Year 8 %	Year 9 %	Year 10 %	Total %
Watching TV		(n = 186)	(n = 182)	(n = 182)	(n = 550)
	Yes	65	60	52	59
	No	26	23	38	29
	Don't Know	9	18	10	12
	Total	100	100	100	100
Video Games		(n = 188)	(n = 184)	(n = 181)	(n = 553)
	Yes	72	66	65	68
	No	18	22	27	22
	Don't Know	10	12	8	10
	Total	100	100	100	100

*Appendix Table 6.3*  
*Perceptions of Addictive Strength x Sex*

Item	Addictive Strength	Sex		Total %
		Boy %	Girl %	
Alcohol		(n = 252)	(n = 259)	(n = 511)
	Very Strong	56	63	60
	Strong	34	34	34
	Weak	9	2	5
	Very Weak	1	1	1
	Total	100	100	100
Drugs		(n = 257)	(n = 268)	(n = 525)
	Very Strong	81	93	87
	Strong	14	6	10
	Weak	3	1	2
	Very Weak	2	-	1
	Total	100	100	100
Cigarettes		(n = 257)	(n = 268)	(n = 525)
	Very Strong	73	88	80
	Strong	20	12	16
	Weak	5	-	3
	Very Weak	2	-	1
	Total	100	100	100
Chocolates		(n = 209)	(n = 231)	(n = 440)
	Very Strong	14	11	13
	Strong	35	39	37
	Weak	42	42	42
	Very Weak	9	8	8
	Total	100	100	100
Fast Foods		(n = 169)	(n = 179)	(n = 348)
	Very Strong	14	8	11
	Strong	34	44	39
	Weak	40	37	39
	Very Weak	12	11	11
	Total	100	100	100
Gambling		(n = 254)	(n = 261)	(n = 515)
	Very Strong	48	69	58
	Strong	41	28	34
	Weak	9	2	6
	Very Weak	2	1	2
	Total	100	100	100
Soft Drinks		(n = 154)	(n = 156)	(n = 310)
	Very Strong	19	9	14
	Strong	20	31	26
	Weak	45	41	43
	Very Weak	16	19	17
	Total	100	100	100

*Appendix Table 6.3(con't)*  
*Perceptions of Addictive Strength x Sex*

Item	Addictive Strength	Sex		Total %
		Boy %	Girl %	
Playing Sports	Very Strong	(n = 146) 23	(n = 140) 12	(n = 286) 18
	Strong	27	29	28
	Weak	29	36	32
	Very Weak	21	23	22
	Total	100	100	100
Watching TV	Very Strong	(n = 183) 22	(n = 183) 20	(n = 366) 21
	Strong	35	31	33
	Weak	31	35	33
	Very Weak	12	14	13
	Total	100	100	100
Video Games	Very Strong	(n = 211) 30	(n = 202) 18	(n = 413) 24
	Strong	38	35	32
	Weak	32	32	32
	Very Weak	10	15	12
	Total	100	100	100

*Appendix Table 6.4*  
*Perceptions of Addictive Strength x School Year*

Item	Addictive Strength	School Year			
		Year 8 %	Year 9 %	Year 10 %	Total %
Alcohol		(n = 181)	(n = 171)	(n = 160)	(n = 512)
	Very Strong	54	59	67	60
	Strong	38	35	28	34
	Weak	6	6	4	6
	Very Weak	2	-	1	1
	Total	100	100	100	100
Drugs		(n = 183)	(n = 172)	(n = 171)	(n = 526)
	Very Strong	86	88	85	87
	Strong	7	9	13	10
	Weak	5	1	1	2
	Very Weak	2	2	1	1
	Total	100	100	100	100
Cigarettes		(n = 182)	(n = 173)	(n = 171)	(n = 526)
	Very Strong	80	82	78	80
	Strong	15	15	18	16
	Weak	4	1	2	3
	Very Weak	1	2	2	1
	Total	100	100	100	100
Chocolates		(n = 165)	(n = 143)	(n = 133)	(n = 441)
	Very Strong	11	14	13	13
	Strong	43	32	35	37
	Weak	41	46	40	42
	Very Weak	5	8	12	8
	Total	100	100	100	100
Fast Foods		(n = 123)	(n = 116)	(n = 110)	(n = 349)
	Very Strong	10	13	12	11
	Strong	45	33	38	39
	Weak	37	39	40	39
	Very Weak	8	15	10	11
	Total	100	100	100	100
Gambling		(n = 176)	(n = 171)	(n = 167)	(n = 514)
	Very Strong	59	59	58	58
	Strong	35	30	36	34
	Weak	6	8	5	6
	Very Weak	-	3	1	2
	Total	100	100	100	100
Soft Drinks		(n = 107)	(n = 109)	(n = 97)	(n = 313)
	Very Strong	12	15	16	14
	Strong	36	18	23	36
	Weak	38	40	50	43
	Very Weak	14	27	11	18
	Total	100	100	100	100

*Appendix Table 6.4 (con't)*  
*Perceptions of Addictive Strength x School Year*

Item	Addictive Strength	School Year			
		Year 8 %	Year 9 %	Year 10 %	Total %
Playing Sports		(n = 97)	(n = 103)	(n = 87)	(n = 287)
	Very Strong	18	17	18	17
	Strong	25	30	29	28
	Weak	37	30	30	32
	Very Weak	20	23	23	23
	Total	100	100	100	100
Watching TV		(n = 132)	(n = 126)	(n = 110)	(n = 368)
	Very Strong	19	20	24	21
	Strong	33	32	35	33
	Weak	38	33	26	33
	Very Weak	10	15	15	13
	Total	100	100	100	100
Video Games		(n = 146)	(n = 138)	(n = 131)	(n = 415)
	Very Strong	25	21	37	24
	Strong	32	28	34	31
	Weak	32	37	28	32
	Very Weak	11	14	11	13
	Total	100	100	100	100