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An investigation of health problems among female hairdressers in Western Australia

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Abstract

Female hairdressers in Western Australia were surveyed to determine the occurrence of health problems that may be associated with their work environment. The cohort of 238 hairdressers reported poor health behaviours including a poor dietary and fluid intake; a high prevalence of smoking; and a low level of glove usage when undertaking wet work and handling non-discolouring chemicals. Younger hairdressers were found to be most at risk of increased respiratory illness, musculoskeletal problems, skin conditions, bowel issues and general poor health. When compared with data obtained from the Australian Longitudinal Study on Women's Health (ALSWH), younger hairdressers reported a higher prevalence of common health problems than the ALSWH cohort, while mid age and older hairdressers were deemed to be as healthy as the comparative group. It is likely that this age-related difference is attributable to the "healthy worker effect".

Keywords: hairdressing, occupational health, healthy worker effect.

Background

The hairdressing work environment contains a range of potential health hazards. Hairdressers are required to stand for long periods of time, use their arms in repetitive movements and may have limited opportunities to take breaks. Hairdressers may be exposed to a range of chemicals in their workplace, often without adequate ventilation or personal protective equipment.

The primary aim of this study was to investigate the prevalence of common health problems among Western Australian (WA) hairdressers as compared to the general Australian female population. Health concerns examined in this study include: gynaecological conditions; bladder and bowel conditions; musculoskeletal disorders; dermatological conditions; and respiratory illness.

Exposure to chemicals in the hairdresser work environment has prompted a range of studies to examine the gynaecological health of female hairdressers, but the results have been mixed. Some studies have found little or no evidence of an increased risk,^{1, 2} while other studies have found small, but significant, negative gynaecological and reproductive health outcomes^{3, 4, 5, 6}. Internationally, slightly increased risks of infertility⁵, having preterm babies³, and having smaller or low birth weight babies^{6, 7} have been associated with hairdressers. Work which involves extensive standing has been identified as a risk factor for spontaneous abortion⁵.

An increased risk of bladder cancer has been reported for hairdressers^{8,9}, probably related to exposure to hair colorants^{8,10}. Aspects of hairdressing work such as minimal toilet breaks and the avoidance of fluid consumption can increase the risk of bladder and bowel conditions.

Hairdressers stand for long periods of time, often in awkward positions with twisting and repetitive movements and with both arms and hands used extensively¹¹. Work environments and tools are often poorly designed, placing hairdressers at risk of lower back, leg, neck, shoulder, arm, wrist and foot injury^{12,13,14}. A lack of knowledge about the hazards of hairdressing work has been identified as a contributor to work-related musculoskeletal disorders¹³.

Hairdressers are exposed to a range of airway irritants¹⁵ and they have an increased prevalence of chronic bronchitis, asthma, asthma-like symptoms, allergy and other respiratory illnesses^{16,17,18,19}.

Dermatitis affects up to 50% of hairdressers within three years of starting work²⁰. Hairdressers undertake wet work, which is a known risk factor for contact dermatitis²¹ and which has a poor prognosis for recovery^{22,23}. Prevention is of primary importance and gloves should be worn to reduce contact with irritants²². However, a range of studies have demonstrated a low level of glove use by hairdressers^{22,24}.

An Australian study found that 91.9% (n = 169) of hairdressers wore gloves when undertaking hair dye work, but only 33.2% (n = 61) wore gloves while using perm solution²². It has been asserted that hairdressers may be more concerned about the immediate impact of discoloured hands than the potential health risks associated with chemical handling²².

A need for occupation specific Australian research

The majority of existing research on health outcomes for hairdressers tends to group hairdressers together with other occupational cohorts, including tattooists and body piercers²⁵; farmers, loggers and police officers¹⁴ and construction workers, nurses, metal workers and cleaners²⁶. Including other occupational groups with hairdressers may dilute the small, but potentially significant increased health risks experienced by hairdressers.

Occupational specific studies have been conducted with international hairdresser cohorts for health concerns such as rhinitis and asthma; dermatitis (including glove usage); fertility and gynaecological health. However, there is an absence of research within Australian hairdresser cohorts.

Methods

The study population consisted of female hairdressers, aged 22 to 66 years, who resided in WA. Males were excluded from this study since the comparative group was female. Until November 2010, hairdressers in WA had to be registered with the Hairdressers Registration Board of Western Australia (HRBWA)²⁷ for which there were 6,879 registered members during 2010²⁸. During 2009, prior to recruitment, the HRBWA advised members of this study through their website and newsletter.

WA hairdressers were identified through the Yellow Pages. After eliminating duplicate entries and male-only barbers, 718 salons were included in the study. Each salon received two questionnaires and reply paid envelopes. An appropriate sample size was calculated to be a minimum of 88²⁹ and a total of 238 participants were recruited (see Figure 1).

Figure 1: Hairdresser cohort by age group

[Figure 1: Hairdresser cohort by age group](#)

A 42-item written questionnaire was devised to collect data for a cross-sectional study. The survey included a range of workplace-related questions, as well as questions on common health problems reproduced directly from the Australian Longitudinal Study on Women's Health (ALSWH), with the permission of Women's Health Australia (WHA). The data obtained from the hairdresser group was compared to ALSWH data books which are available online. Additionally, some comparisons were also made to other published Australian data. Questions on smoking are attributed to the Australian Institute of Health and Welfare (AIHW) via the ALSWH and compared to Australia's National Health Survey data and WA health survey data. Questions on fruit/vegetable and fluid consumption were compared to Australian recommended intakes and WA health survey data.

Ethical consideration

Ethical clearance for this study was granted by the Human Research Ethics Committee of Edith Cowan University (WA) (ref 4274). Participation was voluntary and participants were assured of confidentiality and anonymity. The surveys were non-identifiable and a returned, completed survey was deemed as consent to participation.

Completed questionnaires were collated and the de-identified data entered into the statistical program, Predictive Analytics Software (PASW Statistics)³⁰. Demographic items were examined using frequency tables. Chi-Square analysis was used to compare differences between the study group and the general population group. Cross tabulation was performed to describe differences within, and between variables.

Results

The majority of the 238 participants reported living in the Perth area (n = 167, 72.6%), were full-time workers (n = 185, 78.4%) and many had worked as a hairdresser more than 11 years (n = 151, 65.4%).

Just over half of the participants declared themselves to be in excellent or very good health (n = 122, 51.3%). A further 38.7% perceived their own health as good (n = 92), while 9.7% reported their health as fair or poor (n = 23). To examine this self-reported perception of general health, data was compared with the WA Health and Wellbeing Surveillance System (HWSS) data for 2009³¹. Overall, hairdressers perceived themselves to be in poorer health than the general WA population $X^2(4, N=237)=12.477$, $p<.05$, particularly the younger (aged 22–44 years) hairdressers $X^2(4, N=179)=18.213$, $p<.05$. However, mid aged hairdressers reported being in excellent or very good health more frequently than their WA counterparts.

Smoking

Smoking prevalence was 35.7% (n = 84) which is significantly higher than the 18% reported in the National Health Survey (2007–2008)³². This finding is consistent with international trends for hairdressers⁵. Figures 2 and 3 illustrate the prevalence and patterns of smoking in this cohort.

Figure 2: Daily smoking —hairdressers compared to Western Australian females³³

[Figure 2: Daily smoking - hairdressers compared to Western Australian females](#)

Figure 3: Lifetime smoking —hairdressers compared to Western Australian females³³

[Figure 3: Lifetime smoking - hairdressers compared to Western Australian females](#)

Gynaecological health

The prevalence of hysterectomy among the cohort was 7% (n = 16) which was not significantly different to the general WA female population³⁴, either in terms of prevalence or age distribution.

In the hairdresser cohort 7.8% reported having a surgical repair of a prolapsed vagina, bladder or bowel (n = 18). Since no Australian data was available for the age ranges, the prevalence of surgical intervention was compared to rates in the USA where 2.9% of women (95% CI, 2.1%–3.7%) experience pelvic organ prolapse³⁵, thus showing a statistically significant increase in the hairdresser group $X^2(1, N=230)=19.821$, $p<.05$.

Pelvic organ prolapse data for the 45–50 year age group was available from the ALSWH, and when compared with the same age range in the hairdresser cohort, no statistically significant difference was detected. This result was not unexpected, as pelvic organ prolapse is particularly associated with older, post-menopausal women, as incidence of the condition increases with age³⁶. However, in this cohort, age distribution was consistent. Although only demonstrated by small numbers, this result is surprising, as younger hairdressers (22–44 years) reported surgical intervention for pelvic organ prolapse.

Fertility

Twenty two per cent (n = 28) of 128 hairdressers had tried unsuccessfully for more than 12 months to conceive. Of these 50% (n = 14) had sought help for fertility treatment. A small percentage of hairdressers reported currently or previously using In Vitro Fertilisation (n = 6, 2.6%) and nearly twice as many had used fertility hormones to assist with pregnancy (n = 11, 4.7%). While there was no statistically observable difference for IVF, the hairdresser cohort had a statistically significant increase in the use of fertility hormones when compared to the ALSWH group of the same age $X^2(1, N=28)=4.823$, $p<.05$. Investigation of premature birth or low birth weight babies demonstrated no significant differences among the hairdresser cohort.

Bladder and bowel Health

The frequency of leaking urine in the hairdresser group was 26% (n = 59). Across the age ranges there was no statistically significant difference between the hairdresser and ALSWH cohorts for leaking urine or urinary tract infection.

More than half the hairdresser group reported constipation (n = 119, 52.6%), with a significant increase in the younger age groups. For the 22–27 years age group the prevalence of constipation was significantly higher than in the ALSWH cohort $X^2(3, N=85)=9.454$, $p<.05$. This result was also observed in the 28–33 years group $X^2(3, N=28)=10.401$, $p<.05$. A lack of fluid, constipation and straining can promote inflammation and the development of haemorrhoids³⁷. Hairdressers aged 50–55 years reported a statistically significant increase in haemorrhoids prevalence when compared to the ALSWH cohort of the same age $X^2(3, N=16)=14.078$, $p<.05$. For each of the other age ranges there was no statistically significant difference.

More than half the hairdressers drink significantly less than the recommended daily fluid intake of 6 to 8 cups of fluid daily (n = 129, 54.5%).

Eating an adequate diet of fruit and vegetables promotes bowel health and reduces problems such as constipation³⁸. Only 5.9% (n = 14) of hairdressers reported eating the recommended five serves of vegetables per day. Concurrently, the hairdresser group also reported low levels of fruit consumption with only 38.3% (n = 91) eating the recommended two or more serves daily. Figure 4 (below) illustrates the proportion of hairdressers who are eating the recommended two or more serves of fruit daily compared to the Western Australian female population³³. The younger age hairdresser cohorts had the most inadequate fruit intake.

Figure 4: Daily fruit intake —hairdressers compared to Western Australian females³³

[Figure 4: Daily fruit intake - hairdressers compared to Western Australian females](#)

Similarly, when compared to the Western Australian female population³³, the younger hairdresser cohorts and the 50–55 years cohort reported insufficient daily vegetable consumption (see Figure 5).

Figure 5: Daily vegetable intake —hairdressers compared to Western Australian females³³

[Daily vegetable intake - hairdressers compared to Western Australian females](#)

“Other bowel Problems”

The prevalence of “other bowel problems” such as bowel cancer, irritable bowel syndrome, colitis, Crohn’s disease and worms³⁹ was also determined. The youngest group, 22–27 years, reported a statistically significant increase in “other bowel” problems when compared to the same aged ALSWH cohort $X^2(3,N=84)=23.830$, $p<.05$. The 28–33 years cohort also reported an increase in “other bowel” problems $X^2(2,N=28)=19.134$, $p<.05$.

Musculoskeletal health

Hairdressers reported a statistically significant increase in back pain across several of the age groups when compared to the participants in the ALSWH, specifically the 22–27 years age group $X^2(3,N=86)=80.111$, $p<.05$; the 28–33 years age group $X^2(3,N=28)=28.836$, $p<.05$; and the 50–55 years age group $X^2(3,N=17)=9.958$, $p<.05$. The results for the 45–50 years and the 56–61 years were not statistically significant. The 28–33-year-old hairdresser group reported a statistically significant increase in stiff or painful joints when compared to the ALSWH cohort $X^2(3,N=28)=12.195$, $p<.05$. There was no comparative data available for the 22–27 or 34–44 year age groups and the older age groups did not have a statistically significant increase in stiff or painful joints. Nearly half of hairdressers sometimes ($n = 66$, 28.9%) or often ($n = 39$, 17.1%) experienced problems with one or both of their feet. The only group that had data available for comparison with the ALSWH cohort was those aged 28–33 years, and for this group the results demonstrated a statistically significant increase in foot problems $X^2(3,N=28)=20.137$, $p<.05$.

Respiratory health

In this study, 74% of the hairdresser group ($n = 165$) reported allergies, hayfever and sinusitis. These findings were significant for the 22–27 years age group $X^2(3,N=83)=12.920$, $p<.05$; the 28–33 years age group $X^2(3,N=27)=12.470$, $p<.05$; and the 50–55 years age group $X^2(3,N=15)=11.473$, $p<.05$. Additionally 38.5% ($n = 85$) of all the hairdressers reported breathing difficulties.

Headaches and/or migraines were experienced by 86.3% ($n = 196$) of hairdressers, but when compared to the age-specific ALSWH groups, there was only an increase among the 50–55 years age range $X^2(3,N=15)=9.769$, $p<.05$.

Dermatological health

When using hair dyes, only 1.3% ($n = 3$) of hairdressers reported not wearing gloves, yet, 57.1% ($n = 136$) reported not wearing gloves when applying permanent wave solution. Despite the dermatological advice to wear gloves while undertaking wet work, 84.0% ($n = 200$) of hairdressers reported never wearing gloves while undertaking wet work. In the 22–27 years group the prevalence of skin problems was significantly higher in the hairdresser cohort than the ALSWH group $X^2(3,N=85)=30.404$, $p<.05$. There was no significant difference observed for the 28–33 years or the 45–50 years age group.

Psychological health

Compared to their general population counterparts, the youngest hairdressers, 22–27 years, were significantly more affected by severe tiredness $X^2(3, N=85)=46.457$, $p<.05$ and having difficulty sleeping $X^2(3, N=86)=36.451$, $p<.05$. For the other age cohorts no statistically significant differences were observed. There was no significant difference for reported depression.

Discussion

Limitations and bias

In this study, the source group comprised currently working hairdressers. When workers remove themselves from an occupation due to poor health, the population that remains working tends to be healthier in a phenomenon known as the “healthy worker effect”⁴⁰. Studies of workplace risks with non-fatal health outcomes are highly likely to be affected⁴¹. A recent Finnish study of occupational skin disease among hairdressers found that six months following diagnosis and treatment 33% ($n = 17$) had their skin condition healed, 20% ($n = 10$, $p<0.05$) had lost their job, 18% ($n = 9$) had changed occupation 12% ($n = 6$) had changed work tasks, and a further 14% ($n = 7$, $p<0.05$) were on sick leave⁴². When comparing health outcomes between the hairdresser and comparative groups, there is a potential for results to be underestimated due to healthy worker effect bias⁴¹.

Non-response bias may have affected the study as those who respond to the opportunity to participate in research differ from those who choose not to⁴³. It is likely that those with an interest or concern would have been more likely to participate in this study.

Studies have illustrated that participants in the ALSWH tend to be of a higher socio-economic status and report better health behaviours when compared with the National Health Survey participants for the relevant age cohorts⁴⁴. Potentially the ALSWH cohort is healthier than the hairdresser group in this study, although any difference is difficult to quantify. A further source of potential bias may be attributed to the difference in time periods of data collection, with some early ALSWH data being collected in 1996. Furthermore, at the time of the study the ALSWH had no data for women aged 34–44 years. This limitation was considered, and results for this age group are reported as descriptive only.

Smoking is a likely confounder of respiratory symptoms due to the high smoking prevalence of the hairdresser group. Furthermore this could have caused reporting bias as participants are “reluctant to report an exposure he is aware of because of attitudes, beliefs, and perceptions”⁴³, p 250.

Exposure to acrylic nail work may also influence the results; however, only 6% ($n = 14$) reported exposure in their workplace, thus no attempt was made to stratify results.

General health

Younger hairdressers (22–44 years) perceived themselves to be in poorer health than the general population. However, mid aged and older hairdressers considered themselves to be in better health. The healthy worker effect is very likely to be responsible for these findings⁴¹.

Gynaecological and reproductive health

Due to the low incidence rate of gynaecological and reproductive health events in the general population and the relatively small study cohort, no significant association between hairdressing and gynaecological health effects could be demonstrated. However, the apparent increase in pelvic organ prolapse across all ages, particularly among the younger age group, merits further investigation.

Hairdressers attempting to fall pregnant were significantly more likely to use hormone-based medications as compared to the ALSWH cohort. Smoking could be considered as a potential confounder⁴⁵; however, none of the hairdressers in the 28–33 years age group who reported using fertility hormones was also a current smoker, in fact none of this group reported having ever been a daily smoker. Further research into the use of fertility medications by hairdressers would be of value.

Bladder and bowel health

This study does not support the hypothesis that hairdressing increases the risk of women experiencing leaking urine or urinary tract infections. However, younger hairdressers (22–33) reported an increase in constipation and other bowel problems and older hairdressers (50–55) had an increase in haemorrhoid prevalence. Hairdressers did not consume sufficient fluids, fruits or vegetables.

The customer-focused nature of their work can inhibit hairdressers' ability to attend to their own basic health needs. The issues around insufficient toilet breaks, poor fluid, fruit and vegetable consumption and bowel health problems illustrate the need for employers to enable and encourage hairdressers to attend to their basic health needs on a daily basis.

Musculoskeletal health

Hairdressers demonstrated a statistically significant increase in back pain across the younger (22–33), and mid aged group (50–55). No association was found for older hairdressers. Younger hairdressers are more likely to wear inappropriate shoes to work and this is reflected in the prevalence of foot and joint problems among the 28–33 age group. The results are consistent with findings from previous international research¹³,¹⁴. This finding has implications for employers who need to ensure workers are aware of the risk, and to encourage protective behaviours and the use of appropriate clothing.

Respiratory health

Consistent with other previous studies on hairdresser cohorts, this study demonstrates that WA hairdressers report high levels of both current and previous smoking behaviour. Furthermore, hairdressers aged 22–33 and 50–55 years demonstrated a statistically significant increase in allergies, hayfever and sinusitis. This finding is consistent with a range of international studies¹⁶,¹⁷,¹⁸,⁴⁶.

Dermatological health

An increased prevalence of skin problems was reported by younger hairdressers (22–33), however, many hairdressers are forced to discontinue work due to occupational skin disease. Thus the healthy worker effect is expected to influence results⁴².

There was a considerable lack of glove usage among this cohort. This finding is consistent with previous studies, and has implications for both long-term skin health and as a potential route of absorption of a range of chemical products. The assertion that hairdressers used gloves to prevent discolouration rather than to reduce chemical risk²² was supported in this study.

Occupational skin disease has high social and economic costs. In Germany, new employees engaging in wet work for greater than four hours per shift are legally required to attend a pre-employment screening program. Driven by the high cost of workers compensation, this program aims to alert new employees to the requirements for the use of personal protective equipment as well as to exclude those at high risk of injury. Screening is also recommended, but not prescribed, for employees engaged in wet work²⁶,⁴⁷.

Psychological health

This study demonstrates that the younger hairdresser group, aged 22–27 years, is experiencing an increase in both difficulty sleeping and severe tiredness. Depression, however, was not found to be significant in the hairdresser group.

Conclusions

Hairdressing work increases the prevalence of a range of health problems which are exacerbated by a customer-focused workplace culture, which is integral to the running of a successful hair salon. However, the needs of customers have to be balanced with an understanding that a healthy employee provides the best service.

Hairdressers, particularly younger workers, need to be encouraged to maintain adequate food and fluid intakes.

Education on the importance of using personal protective equipment, particularly gloves, needs to be promoted.

All hairdressers need to be educated and encouraged on ways to prevent musculoskeletal injury and work stations should be assessed by an ergonomist.

A culture of smoking has existed in hairdressing, and although there is some evidence to suggest that the prevalence of smoking in the WA cohort has decreased, they still smoke significantly more than the rest of the population. Education and support for the reduction of smoking, particularly around the workplace environment, is indicated.

Younger workers have been identified in this study as being most at risk for a range of health concerns. Education and support needs to be focused on these young workers to enable them to continue in their chosen career without suffering work-related ill-health. An examination of the impact of current occupational health and safety training for apprentices is suggested.

Research conducted for hairdresser cohorts needs to be occupation specific. Potential studies could include direct measurement of chemical exposure. Workplace attributes such as ventilation and exposure to acrylic nail work need to be considered in these assessments.

Investigation is also indicated for some less common health problems such as the use of fertility hormones and the occurrence of pelvic organ prolapse.

Hairdressing can be a creative and rewarding career. It is the intent of this study to better inform hairdressers of the potential consequences of the hazards that they encounter in their workplaces and to encourage improved health and wellbeing for all.

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