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# Searching for health information on the internet : the experiences of Western Australian adolescents

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Running head: ADOLESCENT HEALTH SEARCHES ON THE INTERNET

Searching for Health Information on the Internet: The Experiences of Western Australian

Adolescents

Lee-Anne Martins

A report submitted in Partial Fulfilment of the Requirements for the Award of

Bachelor of Arts (Psychology) Honours

Faculty of Health, Engineering, and Science

Edith Cowan University

Submitted October, 2013

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### Abstract

Adolescents readily engage in online entertainment pursuits, however, it is their online social activities and health information searches that encourage psychosocial development and influence identity formation and autonomy. Considerable research has been completed on various aspects of adolescents' encounters with online health information (for example, see Percheski & Hargittai, 2011), yet minimal research has been conducted using Australian adolescents. This study extends existing research utilising Western Australian adolescents who have used the Internet to obtain health information. The areas explored include how Western Australian adolescents search for online health information, by means of which devices, and their experiences of using the Internet as a health resource. A phenomenological qualitative design incorporating narrative enquiry was used. In-depth interviews were conducted with 20 participants aged 13-17 years old. Thematic analysis based on an interpretive approach was used to analyse the data. Three themes emerged, and most participants relayed positive experiences of looking for online health information. The themes were: "My life kind of revolves around it", "Google it", and "Judging websites by their cover". Western Australian adolescents do search for health information online; however it must be purposeful. They feel encouraged to continue to use the Internet to assist with health related questions. As previously suggested by Goold, Ward, and Carlin (2003), this study recommends the involvement of adolescents in the development of health pages and websites to improve the sites' chances of successfully reaching their target adolescent audience.

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Co-supervisors: Associate Professor Julie Ann Pooley PhD, and

Dr Myra Taylor

Submitted: October, 2013

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## **The experiences of Western Australian adolescents who seek health information online**

It is normative for young people to undergo significant emotional change in their adolescent and early adult years. During this time they typically reorganise their relationships, reassess their place in society and formulate their own identity (Beyers & Çok, 2008). Indeed, it is only by working through these changes that maturational growth and development occurs (see Erikson, 1959; 1968). Critical psychosocial identity questions arise for the first time, which permit adolescents to examine themselves as an individual, as well as against society's standards (Hoffnung et al., 2010). Trial and appraisal of activities and roles in an ever-changing environment allows adolescents to discover what best fits their personality. After this time of experimentation they will reconcile inconsistent and alternative roles and beliefs they have about themselves into a coherent personal identity (Kroger, 2001).

As adolescents endeavour to cultivate their own identity they become increasingly self-determinant in all facets of their lives, especially in relationships (Miller, 1989; Nawaz, 2011). Although autonomy's growth is gradual and usually uneventful, adolescent relationships with their parents will reflect the quality of their joint relationship in childhood (Steinberg, 2001). Allen, Hauser, Bell, and O'Connor (1994) suggest that structured and flexible parent-adolescent relationships will result in autonomous adolescents who remain connected with their parents. Keating (2004) indicates that as adolescent self-regulation increases due to neural connection reinforcement, parental support is still necessary as these neural networks are not fully established until late adolescence (Steinberg, 2001). Other research suggests intergenerational conflict result as the parents' role of regulating their child's behaviour diminishes (Smetana, Daddis, & Chuang, 2003). Autonomy is challenging for parents, as there is scant instructional information as to when and how parents should relinquish control. Research by Collins and Russel (1991) suggests levels of autonomy are set through a progression of disagreement, feedback, and negotiation.

As parental control declines, peer relationships increase in importance. Research indicates adolescents devote approximately 21% more time in Year 12 than they did in Year five socialising with their peers (Larson, 2001). Identity development entails forming an autonomous sense of self while simultaneously fostering and maintaining connections with others (McLean, Breen, & Fournier, 2010). According to Williams and Berndt (1990) adolescents who enjoy healthy friendships have better social skills and more positive self-concepts. Mutuality and intimacy are the hallmarks of adolescent friendships, contrary to those of childhood which are based on shared activities (Steinberg, 2001). Rubin, Bukowski, and Parker (2009) add that friendships provide sanctuary, trust and are an opportunity to learn norms. Younger adolescents need to fill a gap left by gaining emotional autonomy from their parents before they are ready to become fully independent which contributes to peer conformity (Steinberg & Silverberg, 1986). Although peer conformity can also be attributed to the vigour of peer pressure. Recent research implies vigorous peer pressure is not representative, rather adolescents seek advice from a multitude of friends, peers, adults and family (Bokhorst, Sumter, & Westenberg, 2010).

While many adolescents attain a coherent and integrated identity, many others languish in identity confusion (Beyers & Çok, 2008). As an explanation for identity variation, Erikson (1968) highlighted the imposition of context upon adolescents, asserting identity development involved series of person-context interactions. He emphasised the involvement of the community, the environment, and individuals surrounding adolescents in regards to moulding their identities (Kroger, 2000).

During the 1980s and 1990s exploration commenced on contexts, and circumstances associated with identity resolution (Kroger, 2000). Previously, researchers treated context like an intrapersonal feature (Beyers & Çok, 2008), which was “singular and definable” (Yoder, 2000, p. 95). This diminished the way researchers believed socio-cultural factors behaved upon adolescents’ psychological processes. These beliefs unfairly laid responsibility

for the successful resolution of the identity milestone upon the adolescent (Côté & Levine, 1988; Yoder, 2000). The reasons given for the absence of context in the examination of identity formation was the dearth of adequate contextual theory (Beyers & Çok, 2008). Bronfenbrenner's (1977) Ecological Systems Theory initiated investigation of identity formation in context.

The Internet is a context which influences identity development of adolescents. It offers adolescents a setting to formulate their identity, and provides opportunity to examine how their identity fits within humanity (Mastronardi, 2003; Williams & Merten, 2008). Two dimensions are present within identity formation, exploration and commitment (Hoffnung et al., 2010). Exploration occurs when adolescents evaluate potential identities; and commitment follows when decisions are made regarding which specific set of identity beliefs, values and goals they would like to observe (Danielsen, Lorem, & Kroger, 2000; Mazalin & Moore, 2004). Within these dimensions four types of identity statuses have been proposed (achievement, moratorium, foreclosure, and diffusion) which represent different stages of identity development (Hoffnung et al., 2010). In particular, moratorium is a period when adolescents actively explore roles and identities, but have not made a commitment to any (Hoffnung, 2010). The Internet has the capacity to stimulate psychosocial development in adolescents; it is a channel adolescents in the moratorium stage can use to explore the many roles the world has to offer (Hoffnung et al., 2010; Mazalin & Moore, 2004).

Online identity exploration allows for experimentation that is not always possible in the real world. The virtual world is a place where adolescents can try on varied identities. For example, 8.6% adolescents indicate they occasionally present themselves online as a member of the opposite sex (Smahel, 2005). A participant in Maczewski (2002) study commented that his on-ground and online "worlds are different kinds of reality, which both have meaning" within his contexts (p.124). Adolescents have an adaptable collection of constructed identities and realities which are dependent upon the context in which they are used (Turkle, 1995).

Online identity, more than real life identity is able to be, “emergent, fluid and in process” (Turkle, 1995, p. 264).

Today’s adolescents are maturing with unprecedented access to the world at large via an extensive variety of media (Cenameri, 2012; Jiménez-Pernett, Labry-Lima, Bermúdez-Tamayo, García-Gutiérrez, & Salcedo-Sánchez, 2010) and electronic devices. In a survey by Ettel, Nathanson, Ettel, Wilson, and Meola (2012), grade nine to grade 12 students felt relaxed exploring the Internet using multiple electronic devices (Brown & Bobkowski, 2011). Most adolescents have access to the Internet at school and at home (Ettel et al., 2012; Flicker et al., 2004; Goold, Ward, & Carlin, 2003). Due to the wide availability of access points, most adolescents use the Internet regularly (Pujazon-Zazik & Park, 2010). Both genders equally embrace the Internet during adolescence; however variation occurs in the activities they undertake (Brown & Bobkowski, 2011; Lenhart, Madden, & Hitlin, 2005).

Adolescents, more so than their adult counterparts are eager to adopt new technologies (Flicker et al., 2004; Mastronardi, 2003; Percheski & Hargittai, 2011; Skinner, Biscope, Poland, & Goldberg, 2003; Yen, 2010) and they use the Internet for greater quantities of time than adults (Valkenburg & Peter, 2009). Technologies considered contemporary, for example the Internet, tablets, smart phones and social networking sites (SNS) have increased the quantity of time an adolescent devotes to media (Strasburger, 2010). Adolescents consume greater than 7.5 hours per day of media, which is longer than they spend at school or with their parents (Rideout, Foehr, & Roberts, 2010).

Adolescents engage with digital devices to service five key motives including, entertainment, information, communication, organisation, and support (Skinner et al., 2003). In the process they acquire social skills which are necessary for efficacious intercommunication in the digital world (Brown & Bobkowski, 2011; Maczewski, 2002). Entertainment and leisure pursuits in the form of games, music, sports, movies/videos, and pornography are the most common activities adolescents participate in with digital devices

(Jiménez-Pernett et al., 2010; Larsen & Martey, 2011). The Internet is viewed by adolescents as a viable alternative to television, as boredom relief or just “something to do” (Flicker et al., 2004, results section, para. 10). Adolescents today assume they will be continually entertained and linked in to a boundless arena of entertainment via devices they “hold with their hands or prop on their laps” (Brown & Bobkowski, 2011, p. 97; Selwyn & Grant, 2009).

The motive of information as suggested by Skinner et al. (2003) pertains to collecting and dispersing materials for personal or educational use (Thurlow & McKay, 2003). Many studies have documented that adolescent access the Internet is for school work, homework and/or employment (Blais, Craig, Pepler, & Connolly, 2008; Flicker et al., 2004; Goold et al., 2003; Skinner et al., 2003). As high as 89% of adolescents indicated they sought information online related to their education (Skinner et al., 2003). Many adolescents suggest the Internet is an “easy” way to locate information as it was “right at their fingertips” (Larsen & Martey, 2011, p. 81). Others said they utilised the Internet for information primarily as it was quick, simple and supplied large amounts of material (Jiménez-Pernett et al., 2010).

The motive of organisation in reference to the Internet includes participation in special interests groups or ventures (Skinner et al., 2003). The Internet is a rich platform of information and exchange, similar to on-ground social groups (Bargh & McKenna, 2004; Rimskii, 2010). It provides opportunity to cultivate niche pastimes that formerly could not garner interest in main stream media or the numbers to form on-ground groups (Bargh & McKenna, 2004; Boyd & Ellison, 2008; Brown & Bobkowski, 2011). Internet and on-ground groups are unified by their shared interest and activity. The virtual aspect of social groups does not remove their social protocol. To become a member of a group, adolescents must have shaped their identities to fit the group (Rimskii, 2010). If the adolescent’s identity does not fit, they will leave or be removed. Due to the diversity of the Internet, it is probable adolescents will find compatible online groups, which may be unlike their on-ground experience (Bargh & McKenna, 2004). Finding an appropriate online group is advantageous

for identity development and sense of self. Adolescents who participate in real world and online groups experience a greater variety of attitudes and information, and they are at ease with multiple ways of being and thinking (Maczewski, 2002).

The support motive is defined as connecting with online users to provide or obtain mutual or self-support (Skinner et al., 2003). The opportunities for making connections with like-minded people online are unlimited (D'Auria, 2011). For adolescents, access to this environment has significantly augmented the choices available for interacting with peers and unknown persons (Pujazon-Zazik & Park, 2010). Adolescents who use the Internet can be in permanent contact with their friends, who can provide assistance as it is required. Friendships are also formed with people who share their interests, who can broaden an adolescents' knowledge, and support them in their online pursuits (Jiménez-Pernett et al., 2010) which may not be received on-ground (Bargh & McKenna, 2004; Pascoe, 2011).

The motive of communication encompasses interaction with peers, friends and unknown persons (Skinner et al., 2003). Adolescents today spend much time online learning about and interacting with a variety of people and ideas (Blais et al., 2008; Brown & Bobkowski, 2011; Jiménez-Pernett et al., 2010). Electronic backdrops are not detached worlds, rather, online dialogues are an additional method utilised by adolescents to make contact with their friends (Pascoe, 2011; Vandoninck, d'Haenens, De Cock, & Donoso, 2012). Accordingly, adolescents consider the Internet to be a social mechanism and a place where they do "everyday life things" (Larsen & Martey, 2011, p. 82). Other research suggests the Internet can enable adolescent social engagement, (Lenhart, Kahne et al., 2008) and this accounted for their attraction to the Internet more than any other motive including entertainment (Thurlow & McKay, 2003). Indeed, 85% of adolescents in Skinner et al.'s (2003) study used the Internet to communicate with friends.

Adolescents daily concerns revolve around using their digital devices for social networking, instant messaging (IM), posting, watching online content, (Flicker et al., 2004;

Goold et al., 2003) emailing, and using message boards (Pascoe, 2011). These activities shape their social worlds (Pascoe 2011), and may be stimulated by and/or serve as a foundation for identity exploration (Brown & Bobkowski, 2011). Blais et al. (2008), Maczewski (2002), and Valkenburg and Peter (2009) stated that due to the less proximate, yet sometimes more personal nature of online communication, the likelihood of adolescents examining, trialling, and appraising social skills, identities and approaches, which are risky in person, is increased online. For example IM was positively associated with romantic relationships and friendships amongst adolescents indicating there were benefits for using IM to develop and maintain relationships (Blais et al., 2008).

With the advent and popularity of chat rooms, and email during the 1990's, many academics and parents speculated this would reduce adolescent wellbeing and social connectedness (Valkenburg & Peter, 2009). For instance, Kraut et al. (1998) demonstrated that adolescents' happiness and social relations were diminished by Internet use. Nie, (2001) revealed adults who spent time online associated with their friends less and Mesch (2001) discovered adolescents with fewer on-ground friends were more likely to be Internet users. Effects such as these are less probable today. During the 1990s, Internet use was not widespread, thus it was difficult to maintain an existing on-ground social network online when the majority of on-ground friends were not online (Szwedo, Mikami, & Allen, 2012). However in 2007 Internet access was widespread, with 91% of Australian households with children under 18 years having Internet access (Nielson Internet and Technology Report, 2011) therefore the adverse impact on social connectedness was reduced, as adolescents have increased opportunity to connect with friends online (Szwedo et al., 2012; Valkenburg & Peter, 2009).

Applications popular in the 1990's, such as chat rooms which fostered exchanges between strangers have been superseded by applications that allow adolescents to interact with people they know (Jiménez-Pernett et al., 2010). Therefore, not unexpectedly, social



connectedness is encouraged when adolescents interact online with their friends today (Blais et al., 2008; Valkenburg & Peter, 2009). Kraut et al. (2002) conducted a two year follow-up study and discovered that using the Internet ameliorated wellbeing and social connectedness. Positive results occur when adolescents primarily use the Internet to sustain friendships with people known to them; whereas these effects are absent if they involve new friendships or chatting with unknown persons (Bessière, Kiesler, Kraut, & Boneva, 2008; Blais et al., 2008).

Social Networking Sites (SNS) are now an indispensable part of adolescent social connections in contemporary society (Pascoe, 2011). New research indicates 95% of 12-17 year olds engage the Internet, and 81% utilise SNS (Madden et al., 2013). Facebook is the most popular SNS, with 94% of adolescents who use social media possessing a Facebook profile (Madden et al., 2013). The advent of SNS has made spending time with friends easier (Lenhart, Purcell, Smith, & Zickuhr, 2010). Meeting strangers is not considered the aim of SNS (Bargh & McKenna, 2004). Adolescents (84%) stated they used SNS to stay in contact with friends they were not regularly in contact with on-ground (Reich, Subrahmanyam, & Espinoza, 2012) and 86% revealed they used SNS to remain in contact with friends they saw regularly (Vandoninck et al., 2012). While SNS connections are made between adolescents whose on-ground friendships are inactive (Haythornthwaite, 2005), more often adolescents are interacting with friends they see daily (Bargh & McKenna, 2004; Reich et al., 2012).

Research indicates SNS is developmentally appropriate for adolescents, as friends assist adolescents manage developmental tasks (Connolly, Furman, & Konarski, 2000) such as identity, (Subrahmanyam, Smahel, & Greenfield, 2006) sexuality, (Suzuki & Calzo, 2004) partner selection, (Smahel & Subrahmanyam, 2007) and communication norms and culture (Lusk, 2010). It is crucial adolescents create intimacy and emotional affiliation with others (Reich et al., 2012) which research suggests is being made easier through SNS (Lenhart et al., 2010; Lenhart & Madden, 2007). On average adolescents have a network of approximately 130 friends and 68% of the people they communicate with via SNS are considered “very

good friends” (Reich et al., 2012, p. 361). Some adolescents (43%) believe that SNS make their on-ground friendships closer (Reich et al., 2012) or enhance friendship quality over time (Desjarlais & Willoughby, 2010).

Adolescents actively use the Internet to search for health information, which has clear benefits to the developmental tasks of adolescence. Independence is achieved during this stage of development, yet regarding health it is important to recognise the evolution in the distribution of independence and dependence within the adolescents’ support systems (Christie & Viner, 2005). As children enter adolescence, their health care is the sole duty of their parents. However, by the conclusion of adolescence, adolescents are responsible for their own health (Christie & Viner, 2005). Parents, in addition to friends, teachers, and health professionals, remain important educators during adolescence, creating discourse around health information, and safeguarding adolescents from unsafe health situations (Paek, Reber, & Lariscy, 2011). Risky health behaviours, such as smoking and binge drinking are often commenced during adolescence, when personal healthcare transfers from parental to individual control (Skinner et al., 2003). Educators are critical throughout the adolescence stage when enduring health and social behaviour patterns are forged (Flicker et al., 2004; Manganello, 2008).

Chronic health issues are minimal during adolescence compared to other age groups, yet problems, such as sexually transmitted diseases (STDs), drug use, and unplanned pregnancies are proportionately higher, highly stigmatising, (Percheski & Hargittai, 2011) and come at a time when adolescents are unwilling to involve their parents in their healthcare. Adolescents 12-16 years revealed that while parents were a trusted source of health information, only 46% said they resorted to parents for information (Larsen & Martey, 2011). Older adolescents revealed they would ask friends for health information before parents (Ackaard & Neumark-Sztainer, 2001). In accordance, peers greatly influence adolescent decisions about their healthcare, more so than adult populations (Flicker et al., 2004). In contrast, Larsen and

Martey's (2011) participants advised their peers were not accurate sources of health information and they would check peer knowledge with other trusted sources. As adolescents' appetite for information grows they commence searching for it in more elaborate ways (Kuhlthau, 1991). Thus with Internet access readily available it is not surprising that adolescents are increasingly using it for health information (D'Auria, 2011; Lusk, 2010), allowing them to be actively involved in their healthcare (Ambresin, Bennett, Patton, Sanci, & Saywer, 2013).

Although there are no official statistics on the numbers of Australia adolescents who search for health online, the Australia Bureau of Statistics (2011) indicates that 95% of 15-17 year olds and 96% of 18-24 years olds have used the Internet. In America, 93% of adolescents have accessed the Internet, and 31% have searched for health information online (Purcell & Lenhart, 2010). Some estimates suggest as high as one in four adolescents has searched online for health information (Ybarra, Emenyonu, Nasera, Kiwanuka, & Bansber, 2008). Studies by Ogan, Ozakca, and Groskek (2008) and Escoffery, Miner, and Adame (2005) found that 75% of their participants had used the Internet for health, while respectively, 25% looked frequently and 40% sought information at least monthly. Hassani (2006) advanced that adolescents who frequently surfed the Internet are more likely to search for health than those adolescents who surf infrequently. However some researchers advise that adolescents rarely use the Internet for health information (Buhi, Daleya, Fuhrmanna, & Smith, 2009; Flicker et al., 2004; Larsen & Martey, 2011). Due to increased access to the Internet through various devices (Paek et al., 2011) it is probable adolescents are using the Internet as a primary source (Gray et al., 2005) or at the very least, as a supplementary source.

Adolescents believe they are "open to information, education and behaviour change" provided the source of the information is not authoritarian (Peatie, 2002, p. 214). Uncovering information individually is more important to adolescents than having information handed to

them (Peatie, 2002). Consequently many more adolescents will seek health materials themselves as the Internet becomes more accessible. Scholars have determined that adolescents who look online more for health resources are female (Ogan et al., 2008; Percheski & Hargittai, 2011), in their latter years of adolescence (Ralph et al., 2011), and note there are race/ethnicity differences (Hanauer, Dibble, Fortin, & Col, 2004). Adolescents who rated themselves as more practiced with the Internet or had greater web skills were more inclined to seek health information online (Escoffery et al., 2005; Percheski & Hargittai, 2011). Not surprisingly, adolescents with greater healthcare needs regularly accessed the Internet for information (Sun et al., 2005). Interestingly, lower literacy adolescents are equally likely as their higher literacy peers to take advantage of health information found online (Chisolm, Johnson, & McAlearney, 2011).

Much research has been completed regarding the health topics adolescents search for online. Topics which continually feature in the literature are sensitive, occasionally embarrassing (Ackaard & Neumark-Sztainer, 2001; Lusk, 2010), and important to adolescents such as sexuality, birth control, pregnancy, STDs, relationships, and gender (Ettel et al., 2012; Goold et al., 2002; Pascoe, 2011; Rideout, 2001; Skinner et al., 2003). Another area that captures adolescents' attention on the Internet is that of wellness, such as weight, body image, and beauty (Gray et al., 2005; Larsen & Martey, 2011; Skinner et al., 2003). Other areas gaining attention online include mental health, stress management, injuries, and specific diseases and conditions (D'Auria, 2010; Ettel et al., 2012; Rideout, 2001). Adolescents perceive online health resources as safe (Jiménez-Pernett et al., 2010) and as providing valuable information (Chisolm et al., 2011). The Internet empowers adolescents to gain a better understanding of their health and treatment options (Ambresin et al., 2013).

Adolescents believe if health information can be found online, then it must be factual (Bremer, 2005). They indicate they are mindful of the credibility concerns associated with online health information and appreciate the gravity of retrieving trustworthy information

(Gray et al., 2005). However adolescents feel there are minimal means by which to determine if the health information viewed online is legitimate (D'Auria, 2011; Hansen et al., 2003). For instance, only 10% of D'Auria's (2011) participants stated the site's author's credentials were significant when assessing the credibility of a health website. Adolescents must locate, comprehend and appraise online health information and this requires literacy, health literacy and information processing skills (Toms & Latter, 2006). Sanders, Shaw, Guez, Baur, & Rudd (2009) estimate that as high as one in three adolescents have health literacy deficits which interfere with their capacity to appraise and administer online health information (Chisolm et al., 2011; Gray et al., 2005). However Paek et al.'s (2011) participants believed that the more they were exposed to health information via their parents, peers and teachers, the more sophisticated they perceived their health literacy to be. Regular exposure to health information from all media is known to improve health literacy (Paek et al., 2011), which is favourable for adolescents who enjoy using the Internet (Chisolm et al., 2011).

### **Summary**

This introduction provided an overview of the existing research into the experiences of adolescents who search for health information online. It commenced with an exploration of the psychosocial development of adolescents, and how the Internet can encourage identity development and autonomy. It concluded with the ways in which seeking health information online can assist adolescent development, and also considered the advantages and problems adolescents experience using the Internet as a resource for health information. Presently there is minimal research involving Australian youth on this topic.

The purpose of this study is to expand upon existing research by utilising a different cohort of participants, namely Western Australia adolescents who utilise the Internet for health information. Therefore the research questions addressed by the current study include how Western Australia adolescents search for health information online, by means of which devices, and their experiences of using the Internet as a health resource.

## Method

### Research Design

An in-depth phenomenological qualitative design was employed to understand the experiences of adolescents who had previously used the Internet to access health information. Phenomenology is an approach which focuses on concepts, events and the lived experiences of participants (Saldaña, 2011). The focus of phenomenological study is not on the specific and individual lives of participants, but rather the combined commonalities of their collective experiences and perceptions about a topic (Saldaña, 2011). The goal is to precisely reference the actions of people's mental worlds, "how situations are meaningfully lived through as they are experienced with nothing added and nothing subtracted" (Wertz et al., 2011, p.124).

Phenomenology delves into what participants experience and how they experience it; disregarding the usual manner of scientific study and accounts that introduce biology and environment (Wertz et al., 2011). A phenomenological approach, with its focus on rapport building and empathy was selected so as to reach an intimate knowledge and thorough understanding of how the participant group experienced searching for health information on the Internet (Wertz et al., 2011).

A phenomenological methodology incorporating narrative enquiry was deemed most suitable for use with a notoriously adult-wary adolescent population (Peattie, 2002). Narrative enquiry acknowledges that people remember and communicate knowledge in story form (Saldaña, 2011). Cultivating a self-story becomes pronounced during adolescence due to burgeoning cognitive skills and increasing social demands (McLean, Wood, & Breen, 2013). Therefore narrative enquiry allowed the participants to communicate with the researcher in a manner familiar to them. Narratives are simultaneously created through social discourse and undertaken with the current audience in mind. Stories are created within the context of other stories, which may accommodate families, friends, cultures, communities and other traversing plotlines within a participant's life (Wertz et al., 2011). The stories

adolescents tell about themselves, reveals what they have come to know about themselves from previous experiences (McLean et al., 2013).

Stories that participants articulate represent their process of making meaning regarding their experiences of seeking health information on the Internet. How they link and merge disorganised internal thoughts and moment to moment experiences, how they decide what to communicate and how they connect parts of their experiences are elements of how they comprehend their existence (Wertz et al., 2011). Meaning is made when the participant communicates their understanding of certain aspects of their life and the researcher is able to construct unambiguous connections between the participants understanding and their informed understanding of the issue under examination (Wertz et al., 2011). Therefore, the central task of the researcher using a phenomenological narrative approach is the examination of the data to secure “the essence and essentials of the experience that make it what it is” (Saldaña, 2011, p. 8).

### **Participants**

A total of 20 Western Australian adolescents who had previously used the Internet for health related purposes volunteered to participate in this study. A sample of this size was chosen to allow manageable consideration of each individual case while maximising the differences between participants. Such an approach permitted ample comparisons between the participants’ interview datasets (Burgess-Limerick & Burgess-Limerick, 1998).

The sample comprised six males and 14 females who were aged between 13-17 years (mean age = 15 years). Of the 20 participants 19 resided in Perth and one resided in a coastal town south of Perth. The participants came from a range (low, medium and high) of socioeconomic backgrounds and their parents’ occupations ranged from blue collar employment to professional positions. The majority of participants resided in two parent/guardian families (i.e. biological parents and/or step parents). Two participants were subject to shared-care parenting arrangements. Thirteen of the participants (M = 5, F = 8)

attended a private school and seven participants (M = 1, F = 6) attended a public school.

Participants were not remunerated for their participation.

### **Materials**

Data was gathered for this study through the use of an in-depth interview schedule which was comprised of 10 questions (Appendix A). Informal conversational interviews were conducted as they are an effective method of eliciting adolescent accounts of their personal experiences of gathering health information the Internet. In this regard, personal narratives from participants were elicited. These questions were utilised to prompt the adolescents' disclosure of their use of the Internet to gain health information. A recursive technique was utilised during the interviews to obtain an increased understanding any issues raised in relation to seeking health information online. Probing questions were asked when necessary and the researcher was guided by the flow of conversation. Each interview was digitally recorded in entirety.

### **Procedure**

The desired recruitment method was a purposive convenience sample. The recruitment of participants was initiated by the researcher updating her Facebook account status (Appendix B), requesting parents/guardians of potential participants to make contact with the researcher. An information sheet (Appendix C) indicating the nature and purpose of the research was then sent to the parents/guardians via email or post, along with a parental/guardian consent form (Appendix D) and participant consent form (Appendix F). A stamped self-addressed envelope was provided for the return of the consent forms. Potential participants or their parents/guardians were asked to make contact with the researcher to schedule an interview either online via video call, using the program, Skype, or in person at an agreed time and location.

As insufficient participants were acquired via Facebook, a snowball sampling approach was applied. Snowball sampling occurs when the researcher uses existing participants to



make contact with other potential participants (Bryman, 2008). In this case, participants were asked if they knew anyone meeting the criteria (i.e., between 13-17 years old, Western Australian and had used the Internet to obtain health information) who might be interested in joining the research project. An information letter (Appendix E) was then emailed to the current participant to forward to the potential participant. The information letter requested the potential participant to contact the researcher. Once contacted, the researcher forwarded the potential participant an information letter and consent form (Appendix C & F) for themselves as well as an information letter and consent form for their parents/guardians (Appendix C & D).

Prior to the commencement of both the Skype or in person interviews, the participants were reminded participation was voluntary and they could withdraw or refrain from answering any questions. Participants were assured of their privacy and confidentiality of any information disclosed, except in circumstances where the research team was legally required to impart that information. It was also explained that if the researcher believed information disclosed placed the participant or another person's safety or welfare at risk, a parent or guardian would be informed allowing them to exercise their parental duty of care. This circumstance did not arise.

Each interview lasted between 25-45 minutes each.

### **Data Analysis**

Analysis of the data occurred concurrently with data collection. Each interview was transcribed verbatim soon after its completion. The dual phenomenological concepts of "bracketing" (inspecting) and "epoche" (synthesising) were employed during the analytic process (Bednall, 2006; Crist & Tanner, 2003; Lowes & Powse, 2001; Thomas & Johnson, 2000). During the inspection phase, handwritten unfocused memos were made in the margins of the transcripts. These memo notes included reflections, associations, comments and

questions. Through this memo writing process the researcher gained greater familiarity with each of the datasets (Bryman, 2008).

The analytic process continued with the researcher assigning concept category codes to “aligned” memos contained within the first interview transcript (Baxter & Jack, 2008). This dual memo writing and coding process was repeated with all of the other interview datasets. Once this memo writing and category coding process was completed all of the identified codes were continually compared until their inter-relational connections had been established (Bryman, 2008; Saldaña, 2011). In the synthesising stage of the analytic process, the researcher delineated units of meaning (i.e., subthemes) from these connections (Willig, 2008). Next the relationships between these delineated subthemes was established and clustered on the basis of their shared meaning to each other so as to form a small number of overarching themes (Braun & Clarke, 2006; Groenewald, 2004).

### **Maintaining Research Rigour**

Yardley’s (2000) broad principles of commitment, rigour, transparency and coherence were used to guide the validity and reliability of the research. Commitment was judged through degree of involvement and knowledge of the research area. For example, the research findings have been presented within the context of other research in the area. An account of the researcher’s bibliographic details has been published in the following section to allow for interpretation of how the researcher’s experiences bear on the research (Burgess-Limerick & Burgess-Limerick, 1998). Rigour refers to the comprehensiveness of the research, from the suitability of the sample to the research question to the completeness of the analysis implemented (Yardley, 2000). An audit trail was carefully maintained throughout the interviewing process to enhance scientific rigour and credibility with regard to narrative interpretation (Richards, 2005). To further encourage rigour, coder consistency tests were completed during the analysis process to examine consistency of coding over time (Richards, 2005). Also, a subset of participants were asked to supply feedback on the researcher’s data

interpretation. Their comments indicated that the presented interpretation was accurate and a “good portrayal of youths opinions and behaviours when searching for health info [*sic*] online”. The principles of transparency and coherence pertain to how discernable each part of the research process is, as portrayed in the study write up (Yardley, 2000). Records, memos and project setting interpretive notes were consistently maintained. Collectively, they provided an audit trail of how the data was handled and how the research findings were reached.

### **Role of the Researcher**

The researcher believes that the Internet is an acceptable place to commence a health related search, which can guide questions asked of health professionals in the future. On many occasions the researcher has done this in relation to Multiple Sclerosis, childhood illnesses, fitness, nutrition and other minor illnesses concerning herself, her family and close friends. The researcher was mindful that data collected via the interviewing process are collaborative constructs between the researcher and the participants (Richards, 2005). By being cognisant of the researcher’s own experiences, biases and orientation towards searching for health information online, rigour of the study was further enhanced.

### **Ethical Considerations**

In keeping with the guidelines of the Faculty of Health, Engineering and Science Ethics Committee at Edith Cowan University all identifying details of participants were coded to ensure confidentiality. As the participants spoke about their personal experiences of searching for health information online, they divulged information regarding their own health and health concerns. The researcher ensured that appropriate debriefing occurred where necessary. No serious health related issues were raised; however each participant was given a contact list of medical centres and counselling services (Appendix G). All participants had parental/guardian consent for participation in this research. No participants found the

interviewing process upsetting or withdrew from the study. Once transcribed, all audio recordings were destroyed.

**Results and Interpretations**

The purpose of this study was to build on existing research by exploring how Western Australia adolescents are searching for health information on the Internet, by means of which devices and what their experiences are of using the Internet for health information.

Conversations regarding participants experiences of using the Internet to locate health information were coded into three themes, which are displayed as, “My life kind of revolves around it”; “Google it”; and “Judging websites by their cover” (see Table 1). The themes are interrelated; with each theme interacting with and influencing the others. Table 1 includes the subthemes that were identified within each theme.

Table 1

*Themes and subthemes related to participants experiences of searching for health information on the Internet*

Theme	Subtheme
My life kind of revolves around it	Accessing processes
	Frequency of access
	Internet activities
Google it	Access methods of finding health information
	Motivation for accessing health information
	Impact of the Internet health message
Judging websites by their cover	Website design
	Discerning website content accuracy

**Theme one: My life kind of revolves around it**

This theme is the foundation of adolescent’s experiences of going online to search for health information. It examines how adolescents gain access to the Internet, what activities they devote themselves to whilst online, and examines the amount of time they spend online.

Consequently three subthemes emerged: *Accessing processes*; *Frequency of access*; and *Internet activities*.

### **Subtheme one: Accessing processes**

Subtheme one refers to the types of devices the participants used to access the Internet as well as the physical location where the access occurred.

The devices used were laptops, iPads, iPhones, other smart phones, and personal computers (PC). In this regard, results of this study concur with the findings of Borzekowski and Rickert (2001), which suggest that adolescents possess and operate all types of electronic technology. The participants indicated that although they had multiple device options for accessing the Internet, their selection was largely based on situational circumstances. It was remarked:

*An iPad is sort of convenient... say I was out with my friends and I had my iPad, I could do it on the go. (Participant #17).*

However, there is a preference for larger screened devices when looking for detailed information:

*I can use the iPad because the screen's bigger...my phone is too small and too slow, same with like an iPod, but an iPad I'd use, because it's bigger and a PC is bigger. (Participant #17)*

Smart phones were appraised as being the most convenient of the available technologies. Smart phones are widely used across age groups, social economic statuses and cultures (Proudfoot, 2013). All but two adolescents in this study have a smart phone. The participants indicated they were comfortable in using any of the devices. In a study conducted with 10<sup>th</sup> grade adolescents, 74% stated they were pretty or extremely comfortable using the Internet on their home computers for health information (Borzekowski & Rickert, 2001). A current participant comments:

*As long as the Internet's fast I'll use it. (Participant #13)*

Access to the Internet has been found to be widely available. For instance 14-15 year olds accessed the Internet at school or at alternative sites (Goold et al., 2003). In addition, the

great majority of students in Ettel et al.'s (2012) research indicated they had broadband Internet available at home and at school. This is similar to the current study in that Internet access was obtained via school issued technologies (laptop, MacBook or iPad) or school systems (shared devices). However these shared devices provided limited Internet access with schools using filtering software to block unsuitable and inappropriate webpages. A

participant commented:

*At school...like every couple of periods we'll get maybe a laptop and it's mostly just for school related work. (Participant #11)*

However as noted by Goold et al. (2003), and Richardson et al. (2002) as the degree of website restriction increases, so does the number of beneficial health websites being barred or blocked:

*Like a lot of health websites and stuff... are blocked [at school] as well. 'Cause they don't follow like certain, yeah I dunno, rules. (Participant #7)*

In addition to school, current participants sometimes used the Internet at friends' homes, as did 4% of participants in Borzekowski and Rickert's (2001) study, and they regularly took advantage of free wireless Internet when it was available. However, the participants revealed they rarely shared their smart phones. Two participants explained:

*[I use the Internet] on my phone so I use it a lot on public transport, when I'm moving around and excessively during university lectures, yeah free Wi-Fi. (Participant #11)*

*My friends wouldn't really let me go on their phone, 'cause of the phone setup, 'cause they use it for Facebook. (Participant #19)*

### **Subtheme two: Frequency of access**

The number of hours participants usually spend online, and their estimation of the amount of time spent online compared to their friends constitute the topics of this theme.

Previous research discusses time online in terms of daily, weekly or monthly use. For example, in Flicker et al.'s (2004) research, 34% of adolescent participants were online daily, 37% weekly and 29% were online monthly or occasionally. With the advent of Internet enabled portable devices, adolescents are able to be online multiple times per day, for many

minutes or hours at a time. The number of hours current participants spent online varied from 20 minutes to 14 hours per day, with three hours being the average. Some participants indicated they would multi-task whilst online; consequently the amount of time spent online would be intermittent rather than continuous. Interestingly, a survey of 8-18 year olds found adolescents spent seven and a half hours a day with *all* media, and when Internet multi-tasking occurred, exposure increased to almost 11 hours per day (Rideout et al., 2010). The amount of time spent online was dependent on the day of the week with participants spending more time online on the weekend. The participants commented:

*It's not continuous, but I may go on for an hour to talk to friends on Facebook and then I might come off and watch a bit of TV... and then go back on later. (Participant #20)*

*Seven hours Monday to Thursday probably. Eight hours on Friday I'm online and then Saturday and Sunday, if I don't go out, um, it would be like 14 hours. (Participant #17)*

The participants believed the number of hours they spent on the Internet was similar to that of their friends. Many of the participants also suggested their usage was excessive. As two participants explained:

*No we're [my friends and I use the Internet] all the same. (Participant #14)*

*I think it's actually quite long, 'cause if you think about the hours of the day, there's only 24 hours and if you use four of it, that's... like a sixth of your day gone just by sitting there staring at the screen. (Participant #20)*

### **Subtheme three: Internet activities**

The subject matter of this subtheme describes the activities pursued by participants while accessing the Internet. It identifies health topics the participants search for online and whether the search was for school or personal use.

Social networking sites (SNS), particularly Facebook and Tumblr, surfaced as one of the main activities participated in online. This finding concurs with Thurlow and McKay's (2003) conclusions that adolescents' attraction to the Internet is not always for information, but for the social environment it provides. Adolescents use SNS to remain in contact with friends and to make plans to socialise together (Lenhart & Madden, 2007). Flicker et al.

(2004) reported their participants overwhelmingly used the Internet for communication. All but two of the participants mentioned Facebook. These exceptions were a 16 year old female whose parents banned her from using Facebook, and a 14 year old male who rarely used Facebook, instead preferring online games.

A higher proportion of males than females played online games. Adolescent males tend to play more online games, whereas adolescent females are more likely to email and chat (Thurlow & McKay, 2003). Whilst online, the current participants commonly listened to music, watched YouTube, researched and found references for homework, read books and the news, chatted with friends on Facebook and Skype, uploaded and downloaded pictures and photos, or updated their Twitter account. The Internet is often seen as a way to pass time (Flicker et al., 2004). Jiménez-Pernett et al. (2010) found their participants utilised the Internet for music and games (90%), homework (87%), and chats and forums (79.7%). A female participant elaborated:

*I use the Internet excessively. I use it for basically everything but gaming... [I use] social media probably the most. Music is probably the second. And then for basic research, just anything. (Participant #11)*

Current results reveal a strong preference for Facebook and other SNS, as was supported by Lenhart, Madden, Rankin Macgill, and Smith's (2007) study showing half of their participants aged 12-17 years preferred to correspond through SNS rather than email. Some of the current participants stated they maintained an email address for more formal activities such as communication with their school or university, primarily for receiving email messages or submitting assignments. Others also used their email address to register for websites. Email use amongst adolescents fell from 89% to 73% between 2004 and 2008 (Fox and Jones, 2009). While adults rely on email for professional and personal communication, only 14% of adolescents in Lenhart's (2007) research sent emails to their friends on a daily basis. The overall consensus is that email is less important to adolescents today, as can be seen from the following statements:



*Yeah, I haven't used an email account my whole life really. (Participant #12)*

*I look at the emails I get, yeah... I don't email anyone. (Participant #9)*

The Internet was also used for researching information related to health and development issues (e.g. self-diagnosis of a problem, research for a school assignment, or information on a friend/family member's health complaint, fitness, nutrition and diet). These uses were consistent with those of Blais et al.'s (2008) participants, who revealed the Internet was the medium of choice for homework and research. Gray et al.'s (2005) participants revealed that "the Internet was their primary general information source" for health concerns (p.1467). Many of the current participants mentioned looking for fitness, nutrition or diet information, as was found by Hanauer et al. (2004) and Jiménez-Pernett et al. (2010). Additionally, 49% of adults said health information on the Internet altered the way they thought about nutrition, exercise and stress management (Fox & Jones, 2009). A female and male participant (respectively) commented:

*Yeah, definitely like dietary, and like weight loss and fitness. I think every teenager likes to lose a few kay-gees and find an easier way [online] to do it... (Participant #2)*

*How much carbohydrates you should be having and stuff if you wanna keep energy and be able to run the next day.... I've looked [online] at protein shakes just to like rebuild my muscles and amino acids and you know, all the dietary guidelines and stuff I've had a look at them. (Participant #6)*

The participants used the Internet to search for information on similar topics for school, due to the common education curriculum across public and private schooling. Health topics searched included sex education, drugs, alcohol, and smoking. Some age-related differences were observed; younger participants tended not to search for additional information on these topics outside school hours, while older participants were more inclined to search for sex education information at home after its introduction in class. A younger and older participant (respectively) commented:

*We've done that [sex education, drugs, alcohol and smoking] at school. It's just not something I tend to search on the Internet because we learn about it in health. (Participant #15)*

*A lot of teenagers our age, especially look up sex education... I think a lot of teenagers look at what we're taught at school... then we go home and like sort of look at it [online]...and see what it is. (Participant #7)*

The participants emphasised that searching for health information online was not usually done for entertainment purposes. It is noteworthy that British adolescents indicated they did not access the Internet for health information at all (Goold et al., 2003). Another survey found adolescents never (35%) or rarely (47%) searched for health information online (Larsen & Martey, 2001). Furthermore, self-reported “expert” adolescent searchers who were on the Internet frequently indicated they infrequently went online to seek health information without purpose (Flicker et al., 2004). The current participants indicated they actively searched for information on a specific topic and did not usually just happen upon it. A 15 year old male clarified:

*I don't just search things like for random when I'm bored, I'll search it if there's a purpose or need. (Participant #8)*

### **Theme two: Google it**

Theme two examines the how and why of adolescent's experiences of seeking health information online. It is comprised of three subthemes: *Access methods of finding health information; Motivation for accessing health information; and Impact of the Internet Health Message.*

#### **Subtheme four: Access methods of finding health information**

The fourth subtheme consists of data regarding the re/source or actual methods used by the participants to locate health information on the Internet.

The participants were asked about whether their family, teachers, friends, or health professionals provided health website suggestions. At school, teachers preferred to guide student searches by providing a URL, or by key search words. Not surprisingly, adolescents have advised they trust a teacher's health website suggestions (Larsen & Martey, 2011):

*They [teachers] just give us a website; they know all the information is safe. (Participant #18)*

Skinner et al. (2003) noted that if a specific URL was not given to adolescent participants, then they would generally revert to using their favourite search engine to find health information.

The extent of teacher guidance was dependent upon which health topic was being covered in the lesson. For example, sex education classes are predominantly teacher guided, due to the sensitive nature of the topic, the possibility of inappropriate pornographic content being accessed, and the schools' filtering software needing adjustment to unlock suitable websites. For classes concerning drugs, smoking, alcohol, or certain diseases, searches were more likely to be self-directed. As one participant explains:

*It depends on like what you're looking for. If it's like with sex education they'll give you the website to go to 'cause they'll have to go to the main system and unlock the website. But if it's like for drugs and that, they just give it to you and like say google it.*  
(Participant #10)

Approximately a quarter of the participants revealed that no one had provided them with any health website suggestions. Participants in Larsen and Martey's (2011) study stated that a search of health information was periodically initiated by conversation with a friend/s. Many of the remaining participants of the current study stated that they had received health website suggestion from their friends, as well as from teachers, parents, the school chaplain, a sports coach, their doctor, and a psychologist. For instance, a participant explained:

*Yeah like my doctor [made a suggestion] when... I had like lots of stomach problems. He thought I had, Helicobacter Pylori... So he told me like a few websites to look that up.* (Participant #17)

When the participants sought their own health information online, Google was their first choice of search engine, primarily as it is freely available. Search engines are predominately used to locate information as they are uncomplicated, always available, quick, and produce large amounts of information (Boyer & Geissbuhler, 2006). Current participants used Google to resolve specific health questions, as a foundation for researching general health information on unfamiliar topics, for sourcing health definitions, and for clarifying health information. It was established in a study of 18-19 year olds, that Google was trusted by most

participants (Hargittai, Fullerton, Mechen-Trevino, & Yates, 2010). As high as 97.6% of participants used a search engine, chiefly Google, as a means of finding health information online (Jiménez-Pernett et al., 2010). In a study by Hansen et al. (2003), adolescents aged 12-17 years old were observed completing 68 searches, which answered a specific health question; 77% of these answers came directly from search engine results. Typical comments from this study's participants included:

*How do I find health information? I guess I use Google for a start, I just search it. Um, I dunno, key words and that's about it. (Participant #11)*

Searches using Google influenced the health information participants viewed online, with some pages more likely to be recommended than others (Jiménez-Pernett et al., 2010).

When a 15 year old female was asked if she would read a health blog, she replied:

*I wouldn't really do that 'cause it wouldn't really come up in a Google search if I was to search it. (Participant #19)*

Health searches conducted using Google produce many pages of results. This was one of the reasons participants (21.7%) in Jiménez-Pernett et al.'s (2010) study sought online health information. Current participants all used similar strategies to manage the large number of results returned. They examined results on the first page or narrowed their review to the first results on the first page. A study of older adolescents ascertained that they often initiated a search via a search engine and only clicked on the first result returned from the search (Hargittai et al., 2010). Another study reported that its adolescents (83%) followed links from the first nine results produced by a search engine. It further demonstrated that participants contemplated the first page of results 78% of the time, and four pages or less of results 93% of the time (Hansen et al., 2003). Interestingly, out of 16 adult participants, only nine looked further than the first page (Eysenbach & Kohler, 2002). A current participant comments:

*I never click to the second page, 'cause I don't trust the second page. No never clicked to the second page, I mean I would never go on to the second page of the pages (Participant #11)*

The prevailing reason participants contemplated only the first page of search results was the time and effort required to appraise the abundance of results generated by health inquiries. Skinner et al.'s (2003) adolescents were inclined to use single word searches, which produced large numbers of results, many of which were perhaps unrelated to the initial inquiry. Subsequently they did not delve deeply into the results. A 15 year female commented:

*Because it takes time to scroll down them all [results on the first page] and go to the next one [page]. I'm probably too lazy. (Participant #16)*

Several participants were more discerning than most of the health information they viewed subsequent to a search. Their search result strategies included reading beyond the first page, ignoring extraneous results, limiting results to legitimate re/sources, re-wording their search strings if results were irrelevant, and only examining pages noted as safe by anti-virus software. The following participants explained:

*I just re-word it and just keep re-wording it until I find it. (Participant #14)*

*Well I googled it and then there were sites... I make sure it's like got like certain things. My computer usually comes up with if it's a safe site. I'll click on the safe sites. I'll see if they're from universities or like hospitals... and that gives you like reassurance that they're more correct. (Participant #20)*

Wikipedia entries are frequently the first result returned after a search has been completed using Google. Participant's opinions varied regarding the use of Wikipedia for health information, mainly due to its peer editing and collaborative nature. While some of the participants questioned Wikipedia's credibility, some may still have cause to use it (Hilligoss & Rieh, 2008). A participant in Larsen and Martey's (2011) research indicated that Wikipedia was a "dubious source", and that he would have to review information collected from Wikipedia elsewhere. Two participants explained:

*[Wikipedia is] a peer based thing. I suppose you can't really trust what Wikipedia can say because you can easily edit it. (Participant #4)*

*Although all my friends say not too, I trust it [Wikipedia] pretty much 100%, unless something sounds really off. (Participant #17)*

Participants who used Wikipedia commonly perused its reference lists, allowing connection to the original source and verification of the information. A 15 year old female commented:

*I typed in, like Glandular Fever into the search bar and it came up with a Wikipedia entry and I went through there and I went through some of them [references] and then I went [linked] to a different site because I don't use Wikipedia as a source. I use it as a source of information to get other sources. (Participant #4)*

Opinions regarding the use of answer forums, such as Wiki Answers and Yahoo Answers, to assist with online health related searches were divided. Males favoured the use of answer forums more than their female counterparts. Adolescents who look online for health information must be self-confident in their personal knowledge of health, which allows them to make judgement calls regarding the validity of information found online (Larsen & Martey, 2011). Confidence in their own knowledge may be a way of explaining the differences of opinion regarding answer forums. Two males commented on the expeditiousness and convenience of using answer forums for health information:

*I normally look for Wiki-Answers, 'cause there's like five different answers on each one. (Participant #8)*

*Most people have already asked the question, so you just click on the link, you don't have to ask it. (Participant #18)*

Several female participants suggested they did not trust answer forums for personal health information. In contrast, it has been found that a significant number of adolescents do trust the health information they find online (Ettel et al., 2012). A female participant stated answer forums were not helpful or convenient:

*I don't really pay attention to opinions [on answer websites]. If I go onto that sort of site I click out of it because I just think it's a waste of time. I wanna get the information, I wanna get it now instead of having to read through people's comments about it, 'cause you never know what could be true and what could be made up... (Participant #10)*

The participants discussed using recommendations between health websites via hyperlinks, and from references lists. They felt encouraged to link from one website to another when the first website looked professional, was well written, and was user-friendly.

Adolescents (45.5%) in Jiménez-Pernett et al.'s (2010) study also used links from the websites they visited to locate further information. The following participant discussed:

*If it was a website that I really liked and I trusted it, then I probably would [use its links] just because I'd wanna find out where they got their information and if that website is better or if it can help me more. (Participant #15)*

The participants were asked if they would accept a request or like a health related organisation on a SNS, in particular Facebook. Many participants responded positively. A 15 year old female and male commented respectively:

*I think I would if, the information that the [health] page would give was correct. (Participant #4)*

*I only ever, deny random people... but if it was like a health website I wouldn't. (Participant #8)*

Several participants specified that liking a health related page or organisation would be dependent upon the health topic, issue, or organisation the page was representing. A male aged 16 indicated he already liked several health related pages on Facebook:

*Yeah I would [like a health related page on a SNS]. I've liked a few actually; not that I'm into body building or anything but you just like it and see what's happening and you can get a few... updates every so often and some information on there is pretty interesting... Like not things that you need to know but they're just interesting to know, like about the body and stuff, you know, interesting facts. (Participant #6)*

Negative responses were given by some female participants in relation to liking a health page. Privacy was a dominant concern, and if these participants had an illness they would not like a page as it would reveal the illness to friends. They also deduced that a page like could mistakenly indicate to others an existing health problem. Likewise, Ralph et al.'s (2011) 14-19 year olds were concerned that their parents and friends would see their connections and make judgements regarding their health.

Several participants mentioned their Facebook profile, indicating that health related likes were not suitable for their Facebook image. Participants in previous studies commented that the purpose of SNS is entirely social and they were not interested in receiving health updates in this manner (Ralph et al., 2011). The following comments illustrate:

*No [I would not like a health related page on Facebook]. Because, although like, Facebook and stuff you are putting your personal life out there... when I like a fitness page I don't want people knowing I'm trying to be fit... (Participant #11)*

*Your Facebook page would be about creating an image for yourself and if you have it full of medical stuff, I dunno you might look like a bit of a, I dunno. You know people kind of don't want that kind of stuff on their profile, it's about socialising. (Participant #12)*

The remaining participants stated that while they would dismiss requests and not like health-related pages, they would like charity health organisations. Previous participants judge the credibility of a website dedicated to health as higher if the sponsor is renowned and not-for-profit (Robins, Holmes & Stansbury, 2009). A participant explained:

*I don't think I would [like a health-related page], unless it was one of those good ones like um, charities towards things. I'd like those, like Starlight Foundation and the Butterfly Foundation... but I'd never accept or like anything that's from a gym. (Participant #20)*

#### **Subtheme five: Motivation for accessing health information**

The topics contained within this subtheme pertain to the reasons participants engaged the Internet for health information over other re/sources, and methods which may be available to them.

Compulsory classes including Health Education, Physical Education and Childcare were the leading motivator for retrieving health information online. Larsen and Martey (2011) noted their participants were mostly motivated to look online due to educational requirements. Results from Skinner et al.'s (2003) research concur with the previous findings, whereby adolescent participants (89%) reported having school-related health information needs. Participants mentioned searching online for health information for assignments on topics ranging from drugs and alcohol, to Parkinson's Disease and Emphysema. A female commented:

*[I am motivated to look online] just mainly for assignments during Health and Physical Education and just learning about the muscle groups and like emphysema... we just learn stuff like that and stuff on like drugs and sex education. (Participant #10)*



Participants felt motivated to use the Internet for health information to increase their knowledge, and to gain clarification and/or reassurance about their personal health or that of their family and friends. In accordance, Gray et al.'s (2005) participants indicated they used online health for themselves or for someone they knew. Often the current participants utilised the Internet as a diagnostic tool to look up symptoms they were encountering. Jiménez-Pernett et al. (2010) found 95.7% of their adolescent participants sought health information online for personal use. The following comments expand upon this:

*The other week, my eyes were really hurting and I wanted to find out about it and I... looked at the symptoms and that taught me what I had, like how long it lasts and stuff so, yeah I do it just to find out about stuff... (Participant #8)*

*I've also researched like diabetics, 'cause my pop's diabetic... And I've had friends that have had heart conditions and broken bones... so I've just looked up like the symptoms and recovery time and things like that. (Participant #4)*

The current participants advocated online health information in terms of the privacy and anonymity it afforded them, even as they increasingly share information online (Lenhart, Madden, Cortesi, Gasser, & Smith, 2013). Lusk (2010) found adolescents were more forthright when asking health questions online if they thought no one could identify them. Also, Ralph et al.'s (2011) participants saw privacy as a large advantage of searching for health information online. Privacy and anonymity were dominant factors when the search was highly personal, sensitive or embarrassing for the participant:

*'Cause if it's something personal you don't really want to go up to someone and ask them about it... So if you're on the Internet and ask it, it's only between you and the Internet, I mean no one is gonna see that and you can clear your history pretty easy. (Participant #2)*

The ease of accessibility and convenience (ease of use, low cost, and unlimited time with the information) as was also found by previous research (see Chisolm et al., 2011; Ralph et al., 2011; Thurlow & McKay, 2003), was a significant motivating factor for accessing health on the Internet, as compared with other re/sources of health information available to participants. Participants in another study suggested the main reason they looked online for health information was ease of use (36.9%) (Jiménez-Pernett et al., 2010).

*You can just, pick up a phone these days and just like type in a couple of words and you've got all the information there, like there's multiple sites that you can get it [health information] off. (Participant #20)*

Pre-emptive health checks were conducted online by a large proportion of the participants prior to visiting a doctor. This was motivated by a desire to circumvent sitting in a waiting room for extended periods, or wasting their doctor's time with trivial matters. Speed was a reason given by participants (14.7%) in Jiménez-Pernett et al.'s (2010) study to search for health information on the Internet. The following quote illustrated:

*Like the convenience isn't there with a doctor.... I know that you can't see a doctor in under four hours... I don't like going to the doctors for something that's not important... I feel like it's a waste of time. If you just have a little thought or something, like a little bit concerned, something silly, you don't wanna go in there and waste four hours of your day and then waste his time and waste other people's time to ask something really ridiculously stupid... (Participant #11)*

Doctors would seemingly be the obvious source of health information for adolescents; however, they do not like communicating with doctors (Ettel et al., 2012). A portion of the current participants felt motivated to use the Internet due to embarrassment or a lack of confidence in speaking with their doctor regarding their ailments. This echoes Ackaard and Neumark-Sztainer's (2001) results, that the majority of their adolescents were embarrassed to discuss topics such as sexuality and drug use with their healthcare provider. Some of the current participants stated visiting the doctor did not feel confidential. Two participants explained:

*Sometimes you don't really have the confidence to ask them [doctors] some of the questions that you could just simply, pretty much just ask between you and yourself [and the Internet] you know. (Participant #2)*

*I dunno doctors are embarrassing, like I get embarrassed when I go to the doctors, it's just like, I don't know you, I don't want to talk to you. The Internet's just like you but doesn't know who I am. (Participant #14)*

Alternatively, a search of an ailment, which participants may not have considered to be pressing, subsequently motivated and expedited a visit to the doctor. In a study of 15-24 year olds, 14% had seen their doctor based on what they had discovered on the Internet (Rideout, 2001). In addition, adult respondents suggested searching health information online actually

improved their communication with their doctor (Health on the Net Foundation [HON], 2005). A visit to the doctor may in turn facilitate time spent online learning more about their diagnosis:

*I had these like lumps in my boobs and I didn't really think much of them. Then I googled that and... when it sort of got to the point where it was a bit serious, I went... to the doctors. (Participant #2)*

*'Cause they [doctors] told me what was wrong and then I googled what it was and stuff... I was interested 'cause the doctor didn't explain it properly. (Participant #16)*

The cost of looking online for health information in comparison to entering the healthcare system is highly motivational for the participants. While participants rely on their parents to pay for their healthcare bills, the rhetoric of not wasting money influences their decisions as to whether they are unwell enough to visit a doctor. As a participant elaborated:

*I think it's actually really good [searching online for health information] because all the information is there... we just don't wanna put in like that much effort and pay hundreds of dollars to go and get seen, for like information we can get off the Internet for like a couple of cents of downloads. (Participant #20)*

The participants specified that they felt motivated to use the Internet instead of speaking to their parents when they considered a health topic to be sensitive, awkward and/or embarrassing. Other motivations included circumventing discussing or avoiding a confrontation with their parents over a health issue. This finding seems to be contrary to that of Ackaard and Neumark-Sztainer's (2001), whose female (58.4%) and male (41.7%) adolescent participants said they would speak to their mother first about health care issues. Two 15 year old participants commented:

*I do use it for searching up health things... sometimes it's embarrassing to ask your parents about some certain things, like sex education and stuff like that, so you just find it easier to go to the Internet because it's all there. (Participant #20)*

*I think if you are looking for it online you might be avoiding discussing it with parents... It's like you wouldn't want to bring up the topic with your parents if it was unneeded, it would cause like an unwanted or unneeded argument so you'd wanna make sure of what you're thinking before you kinda brought it up. (Participant #12)*

The participants reflected on whether they would be more motivated to like a health related page on a SNS if their friends had previously liked the page. It has been noted that

liking a health related page was more acceptable if the “popular kids” were liking health related pages too (Ralph et al., 2011). The current participants asserted they were not influenced by their friends’ page likes. They would contemplate the content then draw their own conclusions. However, if a friend liked a page, this was an undemanding introduction to a page the participant may not have known existed or it may indicate that the page is safe to like and follow. Two female participants aged 13 and 17 years commented:

*Yeah, I mean I don't go looking for it [health pages] but if like say, it comes up with that my friends have liked it or something I would go have a look, if I liked it I would like it and if I didn't then I wouldn't. (Participant #5)*

*I wouldn't like it because they [my friends] all liked it but I might like it because maybe it was something really important if they all liked it... (Participant #11)*

### **Subtheme six: Impact of the Internet health message**

Impact of the health message explains participants’ feelings regarding their experiences of searching for health information online. They discussed whether they had applied online health information to their lives and whether they felt encouraged to utilise the Internet for health information in the future.

Predominantly, participants indicated that the health information they obtained online was helpful, as it had increased their knowledge or gave them a better understanding of a health issue. In accordance with the current study, data collected by Borzekowski and Rickert (2001) suggests adolescents find health information located on the Internet to be of value to them. All participants used online health information for school assignments and some disclosed that they retained it in their memory for future reference. Others stated that they had applied online health information to their own lives if only a small change in behaviour was required. This finding concurs with that of Rideout (2001), whereby 39% of participants, aged 15-24 years, commented that they had changed some part of their health behaviour as a result of online information. A female participant commented:

*Yeah it's [health information] usually quite useful... For example, I used to love nuts with lots of like salt, and I read somewhere [on the Internet] that by adding salt to the nuts you almost decrease the healthiness of the nuts by almost half... I just don't eat*

*salty nuts anymore and it's just stuff like that, little things that don't have major impacts... The diseases stuff... you just sort of look at it and take in the knowledge... When I did the assignment in like year 7 that was obviously useful 'cause I used what I found for my assignment... (Participant #7)*

Other participants sought online answers to tangible health problems. On several occasions specific searches led to medical intervention, for themselves or their family and friends. Adolescent participants (43%) reported that they looked for health information online for specific issues (Ettel et al., 2012). Adult participants (60%) also mentioned that online health information affected how they decided to treat an illness/condition, and 56% said it altered their attitude to sustaining their health or the health of somebody they cared for (Fox & Jones, 2009). A 15 year old female commented:

*My sister had a bladder infection and she was 11... she was weeing blood so... it wasn't the normal thing. I don't exactly know how the infection came on, but I just said bleeding in wee on the Internet. It came up with like possible kidney infection... I just spoke to my parents... and we took her to the hospital and she actually had to go on medication and it could have been really serious if we hadn't of found out [online] how serious it was. (Participant #20)*

Some participants stipulated that they only searched for inconsequential health information online. Often their responses regarding whether online information was useful were affirmative but succeeded by a statement which limited the information's usefulness. Some participants in Larsen and Martey's (2011) study indicated their lack of familiarity and understanding about health issues made the Internet less appealing as a source. Some of Flicker et al.'s (2004) participants did not regularly use the Internet for health information as there was too much information; they had problems figuring fact from fiction, did not understand the information, and generally felt overwhelmed. As a current female participant indicated:

*Sometimes it's [online health information] really helpful, 'cause some things that you have, you can say, oh yeah I have that. But sometimes it can be a bit confusing, 'cause some like health problems can have the same symptoms and you're confused as to which one is which. (Participant #19)*

The majority of participants said their experiences searching online for health information were positive, due to information being found easily, appearing reliable, being

helpful, increasing their understanding, and being applicable to the participant's life. As two participants explained:

*Well I suppose it's been pretty positive because it's like helped me a lot to understand what my Nan had and how it influenced everybody else and her. (Participant #5)*

*I think it's had a positive impact because... when you have little scares... if I didn't have the Internet to look at things ... I might not have gone to the doctor and I might have let things slide and if there was something then it could have gone wrong. (Participant #11)*

As a result, the majority of participants stated that they felt encouraged to use the Internet again to search for health information. Successful searches, informative health websites, convenience, and “a no harm in looking” approach were reasons given for feeling encouraged. According to the HON (2005) study, only 3% of adult respondents reported knowing someone who had been harmed by medical/health suggestions found on the Internet. Two 15 years olds commented:

*Yeah I have [felt encouraged], it's been working for me so I keep doing it. (Participant #8)*

*Yeah encouraged, it's there and it's convenient so if I need it, like right now I'll google it. (Participant #14)*

No participants suggested that their online search experiences had been negative. However, some participants mentioned undesirable outcomes, including being shocked and/or frightened by the uncensored content, and feeling disgusted about confronting disease photos. A female participant commented:

*In some things it's [the Internet] been positive like just with little things, just easy to change. But with like dad and mum's health issues I wish I never looked at what they [Internet] said and stuff so it's got its positives and its negatives... I think if it's a serious situation then... the Internet's just gonna tell you the worst things. (Participant #2)*

A 16 year old female and a 15 year old male felt ambiguous about using the Internet to search for health information in the future. They indicated that information found online is not consistently reliable. They commented:

*Not really, if there is a problem arising I'll usually turn to my friends before like I go on the Internet 'cause like, I dunno I don't believe some of the stuff that's on there. (Participant #10)*

*A bit encouraged, a bit discouraged 'cause like I said it's not reliable all the time, but still convenient and quick and you can, on the rare occasion get one hundred percent information. (Participant #18)*

### **Theme three: Judging websites by their cover**

This theme examines which website features are appealing to participants and how participants evaluate whether online information is accurate. It is comprised of two subthemes: *Website design* and *Discerning website content accuracy*.

#### **Subtheme seven: Website design**

The seventh subtheme describes how the features and content of a website determine whether it will hold the attention of participants, and allows the participants to determine the credibility of the health information they were viewing.

Numerous features of health websites were mentioned when participants discussed what made a website interesting, and what would entice them to read the health information on a website. Adolescents indicated the features of good websites included quick access, easy readability, and simple navigation with good links (Peattie, 2002). Interactivity and audio-visual effects were also highly regarded. In accordance, features that made websites most appealing to the current participants included being visually uncomplicated, understandable at a glance, and user friendly:

*You want to find something that you can understand... If you like search something and results with 20 letter long words appear you'll need your dictionary. I don't like it when they're [websites] jumbled around 'cause then you've got to like find it [the information] ... you've gotta be able to just like look at the page and go oh yeah that's it, you don't want to actually look for it. (Participant #20)*

Some participants stated that graphic and confronting images on health websites were beneficial for capturing their attention and sending a message. However, the majority of participants commented that a health website must have relevant and visually appealing

pictures/photos. A sense of humour was often mentioned as an attractant to a health website.

As was explained:

*It's very good if they [websites] have like some pictures and diagrams, if it's relevant. But I don't like those ones where they go like full frontals and stuff... When I was searching up anorexia and stuff instead of showing a girl, actually like standing there and looking really disgusting and all skinny, they had an apple ... which was all eaten and skinny looking into a mirror looking all fat. And I was like that's a really clever idea... you get the idea... Just simple pictures are good. Not really gross ones, that you don't want to look at... (Participant #20)*

In addition to attention grabbing features, participants were subsequently asked to describe what made a health website appear credible. Several studies have examined this aspect of health websites. Adolescents revealed they ranked layout and information design amongst their highest priorities when determining the credibility of health websites (Stanford, Tauber, Fogg, & Marable, 2002). This outcome was repeated by Barnes et al. (2003), whereby design and aesthetics were a significant predictor respondents utilised to identify quality health information on a website. Many current participants indicated that a health website must look professional and have good page layout to present as credible:

*To a lot of kids...if it [website] doesn't look good... then probably not a lot of effort has gone onto it. Websites must look professional and good. (Participant #7)*

*I normally judge [credibility] by the detail of the website. If it's a well put together website I think it definitely... knows what it's talking about. But if it's just like, a website with a bad boarder and bad colour... it's a dodgy one. (Participant #13)*

Aspects of how website content was written were employed to determine credibility.

Teenaged participants in Nelson and McLeod's (2005) study revealed they liked brief, intelligible text. The current participants believed that if the language used was too simplistic, colloquial or abstract, then its health content was less accurate. Accordingly, credibility was reduced when poor grammar and spelling errors were present:

*You've gotta... find something that's in the middle. It [the website] can't be like really bad grammar and really bad spelling... 'cause it just appears like it's been written by a three year old; I can't get information from a three year old. (Participant #20)*



**Subtheme eight: Discerning website content accuracy**

The discussion within this subtheme relates to how the participants determined whether the health information they were searching for online was accurate and came from a credible resource. The concept of credibility has many dimensions, including believability, trust, reliability, accuracy, fairness, and objectivity (Self, 1996). There is no ubiquitous credibility definition (Tseng & Fogg, 1999), however it is generally recognised as believability, with two central aspects: trustworthiness and expertise (Hovland, Janis, & Kelly, 1982). Typical measures to ascertain the credibility of Internet health information include website authority, content accuracy, information currency, design, ease of use, and disclosure (D'Auria, 2010).

All participants had spoken to their friends about online health information. This discussion acted as an audit for Internet information, allowing for substantiation or questioning of its content. Such discussion included unimportant or relevant personal information. Female participants were more likely to discuss their own health with their friends than male participants, who were more likely to chat about less personally relevant health information. The following female and male participants (respectively) explained:

*Yeah my best friend and I [discuss health information]. She's usually like the first person I call 'cause she's just not your mum, she's not your dad and then we just talk it through... We sit on computers at opposite ends of the phone. (Participant #11)*

*Yeah [I discuss health information] mostly people that I play sport with... I've got a mate that went to Brazil for soccer... I told him about the amino acid thing and how it could help after games and he's started taking that now and protein shakes... (Participant #6)*

Parents, like friends, acted like a sounding board for determining the credibility of online information. In Rideout's (2001) analysis, 53% of 15-17 year olds consulted an adult or parent regarding information ascertained online. Current participants fell into four groups regarding discussing online health information with their parents: those who spoke about any information; those who spoke about information not considered awkward; those who spoke about information when it applied to their own health; and those who did not speak to their parents about online health information. Mothers were more likely to be approached than

fathers regarding information found online for both male and female participants, as was found by Ackaard and Neumark-Sztainer (2001). The following participant commented:

*Yeah I discuss a lot with my mum, probably not the sexual education stuff. Just because I don't wanna have that discussion with my mum, but any other thing. (Participant #11)*

The majority of Internet health searches undertaken by participants did not result in consultation with a doctor as a means of validating or rejecting information found online. Nonetheless, several participants had seen a doctor as a result of personally relevant information they had found. Others mentioned they would see a doctor if they located something personally relevant to their own health:

*When I thought I had an STD and I looked at them all [online] and I went into the doctor's... I had like two or three that I thought could have been possible. I didn't have any of them, but you go in there and you're hyped up on the Internet... (Participant #11)*

*Maybe something that I thought, like I read something [online] about a disease or something like that and I thought it affected me I... most definitely would talk to a doctor. (Participant #7)*

Participants regularly reviewed online health information in class by conversing with their teachers. While the majority had not spoken to a teacher regarding personally relevant health information, most had discussed online information found for a class or assignment with the teacher, class, or a class partner. This finding seems to oppose the results of Larsen and Martey (2011), who discovered their participants turned to their teachers “a lot” (23%) or “a few times” (43%) for health information. A current participant explained:

*For most things I do school-wise it's an assignment, so you... go hand it in then you get feedback [from your teacher] and 'cause you've got to do a bibliography at the end you give all the links of your websites you've used and they [teacher] can go through and go, this one looks a bit Wikipedia or... Wiki-answers... (Participant #6)*

Repetition between websites was a common way participants determined credibility and reliability of online health information. They indicated they would verify information on two to four websites to satisfy their need for reliability. Participants in Larsen and Martey's (2011) research also used repetition as a strategy to determine accuracy of information,

although this strategy increased the load of Internet searches. The same participant commented:

*If I only see it [health information] on one website I probably won't trust it... if I'm looking for something then I'll go to more than one website. Like if I see it on like three or four websites then I'll go, yeah all right... If I can find it on more than one website definitely I, trust it a bit more. (Participant #6)*

When discussing resource credibility, participants frequently referred to three re/sources used for obtaining health information: Wikipedia, government websites and organisational websites (org.com), and answer forums.

Participants thought health information obtained from Wikipedia was not reliable as it can be edited by any Internet user. It was suggested that excessive detail in Wikipedia entries reduced accuracy, as it was likely some of this detail was incorrect. Spelling and grammatical errors also eroded participant confidence in Wikipedia's credibility. Participants who found health information on Wikipedia verified the information on another website:

*If I find it on Wikipedia I want to find it somewhere else, like an actual website as well just to make sure... 'cause anyone can add anything. Yeah and if I can find it on more than one website definitely I trust it a bit more than just finding it on Wikipedia. (Participant #18)*

Government websites and org.com's were noted as a resource that could be relied upon for credible health information. This was also found by Hargittai et al. (2010), whose adolescent participants trusted websites with .gov or .edu suffixes. Some participants indicated that while information from government sources was accurate, it may not be the best resource for comprehensive information on specific illnesses. Government websites are not the most inviting for adolescents, as they are not colourful or designed with this age group in mind (D'Auria, 2011). As a 17 year old participant explained:

*Government certified websites which you always know the information is correct, so they're handy too. But sometimes they're a little bit safe in the stuff they have online... Which is a little bit not convenient. Conservative is the word I was looking for. Sometimes it's [the health information on government websites is] not specific enough, it's too broad. (Participant #11)*

The participants' opinions regarding answer forum credibility was divided. Some participants gave no credence to information from these types of websites, while others trusted the information if it could be verified by other more credible websites:

*Sometimes I don't know where people get things from, like you ask questions on Answers, like Yahoo Answers or whatever, and then I have no idea where, how, where some people get their information from... normally it's their personal experiences... Lots of different people say different things but I kinda skimmed through it then went to the next website. (Participant #3)*

Answer forums allow readers to vote on answers they believe to be most correct, consequently an answer can move up or down a scale depending on how accurate readers perceive it to be. Some participants took this into account when determining the accuracy of an answer, others took a quasi-average of answers to determine accuracy, and sometimes accuracy was determined by the author's credentials. As two females explained:

*I do use Yahoo Answers a lot... the question that I wanna ask has never not been asked before. And then I like, can compare all the answers and the one with the most [answers] the same I usually take, like I just trust it if everyone's had the same kind of opinion. That's how I do it. (Participant #11)*

*That sort of the thing, if you're on the Internet, you can't really tell whose opinion is like, more correct. The one that occurs most often and if the people that are talking about this are like, credible and things like that. (Participant #15)*

Participants who used health information from answer forums also employed other strategies for judging the credibility of information, including good grammar and spelling, good content, medium length, whether the answer made sense, the author's credentials, and whether the answer had links to other credible health websites. As a female participant explained:

*Well I guess it sounds stupid to say, but first of all I look at the one [answer] that's most spoken with like a hint of education... I mean, like it's not slang written and it's words are spelled correctly, grammar is there because obviously that hints towards education. I dunno I feel like those people who know what they are talking about use the terminology, which always increases, reliability you know. (Participant #11)*

Participants had varied responses regarding whether they had concerns about online health information. The apprehensions mentioned by those who indicated outright that they had concerns included confusion interpreting the information, whether they would recognise

incorrect information, applying incorrect health information to themselves, and authorship of the information. Other participants were also uncomfortable relying on information found on the Internet, believing it may not be accurate (Ralph et al., 2011).

*Yes [I have concerns] I mean there's so many websites out there you don't know what one's telling the truth and what ones could be far from the truth; that's what gets me. I get a bit concerned about reading it... and thinking that's not too true is it? What's right and what's wrong could end up confusing you. (Participant #2)*

*[I have] a concern like... what if I make a mistake, what if I do it wrong, will it affect me... Maybe this is just a made up website by some guy who's just trying to get attention. I mean he may look like he's been at university for 10 years but... he really is someone that got a bad mark on his um you know. (Participant #13)*

Others in Ralph et al.'s (2011) study took particular steps to confirm the accuracy of online health information, as did the majority of current participants. While they indicated they that had no concerns regarding information found online, they offered strategies to discern the legitimacy of the information. These often included moving on from a questionable website, using repetition to clarify information, completing further research on the information, and/or relying on their existing personal knowledge of health. A participant explained:

*I don't think so [concerns about the health information]... stuff these days is not just like random; most people have some sort of idea and you just sort of learn to know what is obviously not true. But I don't think I've ever really come across something that you just know is not right. Usually you can check it [information] with more than one website and see if like they match up. Otherwise, um a lot of the stuff... you sort of already know, but you're just sort of checking and if it's what you've already got in your head you usually just go with it. But if it's something completely different then I think I usually would double check if it's right. (Participant #7)*

Participants commented about the credibility of health related pages on SNS. They were typically concerned about who was composing the information on these pages. It was suggested that reading the contents of a pages' posts was a satisfactory strategy to establish if the information was accurate before liking the page. Following well-known brands or organisations equated to the provision of more accurate information. Participants expressed that they would unlike a health related page if the information proved to be incorrect. As a male illustrated:

*I probably wouldn't like it [a health related page]. If I found it on the Nike website or an Adidas website yeah I'd like it 'cause everyone knows Nike and Adidas but if I found it on some like weirdo site then I probably wouldn't. I'd probably look at it and take notice of it and take it in but I probably wouldn't like it. (Participant #6)*

### **Conclusion**

The intention of the current study was to broaden the existing research by exploring the experiences Western Australian adolescents have of searching for health information on the Internet, including how they searched for health information, and by means of which devices. Three themes emerged from the data: “My life kind of revolves around it”; “Google it”; and “Judging websites by their cover”. These themes were classified into eight distinct subthemes. Overall, it was elucidated that Western Australian adolescents enjoy engaging with the Internet and employ it as a medium for accessing health information.

Participants used multiple devices to access the Internet. They preferred smaller, Internet enabled devices due to convenience. Internet connections were available to participants through wireless networks, at home, and at school. The number of hours participants spent online varied from 20 minutes to 14 hours per day.

Participants enjoyed engaging the Internet for entertainment purposes. Social networking sites, such as Facebook, were a popular pastime, as was found by Madden et al. (2013). An interesting finding was that participants rarely used email, reiterating Lenhart's (2007) research. This may be due to the evolution of technology. Applications such as Facebook utilise instant messaging, which enables adolescents to receive messages anywhere, and reply to them immediately. Instant connection with peers may be invaluable during the transition process from adolescence to adulthood, when peers groups, social relationships and identity development hold special importance (Mazalin & Moore, 2004).

Searching for health information online was not considered entertainment. Participants indicated there must be a distinct reason to look for health information. This may come in the form of self-diagnosis of a personal problem, research for a school assignment, or an inquiry into a friend/family member's health complaint, as aligned with previous studies (see

D'Auria, 2009; Fox & Jones, 2009; Gray et al., 2005). Other motivating factors for seeking health information online include privacy, anonymity and convenience. Many studies have identified similar findings (see Borzekowski & Rickert, 2011; Chisolm et al., 2011; Gray et al., 2005; Jiménez-Pernett et al., 2010; Pascoe, 2011; Ralph et al., 2001; Thurlow & McKay, 2003). For personal searches participants most commonly used search engines, such as Google, concurring with Jiménez-Pernett et al.'s (2010) research. Repetition and credible sources were how participants determined the credibility of the information they were viewing.

The health information found online was considered to be helpful. Participants often made small changes to their health behaviours due to the information they discovered online. As Fox and Jones (2009) found, sometimes the information found resulted in consultation with a doctor for themselves or family/friends. Others had visited a doctor then utilised the Internet to educate themselves about their diagnosis. Participants felt encouraged to use the Internet for health information again in the future..

### **Implications and Recommendations**

Previous research has suggested there is strong potential for reaching diverse youth via SNS (Ralph et al., 2001). The current research suggests that this strong potential may not exist amongst adolescents. Adolescent participants indicated that searching for health information online was not entertainment, and consequently there had to be a purpose for seeking it. Social networking is considered an entertainment activity and adolescents rarely like a health page without having a specific reason for doing so. However, even if there was a specific reason, adolescents in this study were apprehensive about liking a health page on a SNS, for fear of what this may indicate to their peers whose opinions are salient during adolescence (Larson, 2001). Some participants were also conscious of the image they were portraying of themselves on SNS and admitted that liking health page on a SNS may not fit with that image. Participants also suggested they were not influenced by their friends page

likes; therefore it may be difficult for a health message to go viral and reach large numbers of adolescents via a SNS. Hence, as was suggested by Goold et al. (2003), it is this study's recommendation that adolescents be included in the development health pages on SNS.

Participants in this study utilised search engines, such as Google, to locate health information online. While these searches are convenient, they influence the information viewed by an adolescent. Websites work via algorithms, which results in some websites gaining a higher listing than others (Jiménez-Pernett et al., 2010). This is significant as the quality of information varies across websites and many of these sites are sponsored by private companies, which may influence health decisions made by adolescents (Jiménez-Pernett et al., 2010). There may be a deficit of credible, Australian, adolescent-friendly health websites that parents, teachers and health professionals can refer adolescents to for health-related queries. Alternatively inadequacy may lie in the knowledge of parents, teachers, health professionals, and perhaps adolescents themselves. Therefore, a public education program using media savvy methods may be required, in addition to informing students about adolescent-friendly health websites in health education classes.

### **Limitations and Directions for Future Research**

The current study is limited in its qualitative sampling methodology given that small scale studies are not generalisable to the broader population. The study recruited 20 participants via snowball sampling; a data gathering technique which relies on social contacts between individuals to acquire additional participants. As a consequence, most of the study's participants resided in three localised suburban areas and their answers may not be representative of adolescents residing in other parts of Western Australia. Future research could examine the experiences of rural and isolated adolescents' experiences of seeking health information online.

Another area of concern was the unequal number of males and females in the sample, which may have introduced gender bias. Ideally, the sample would have consisted of equal



numbers of males and females; however, this sample is in line with previous research findings which suggest more females than males access online health information (Ralph et al., 2011).

Social desirability bias is an inherent limitation when working with youth. Social desirability bias is the tendency of participants to answer questions in a manner that will be viewed favourably by others (Bryman, 2008). Adolescents are prone to giving answers they believe may be what the researcher wants to hear (Saldaña, 2011). Care was taken to establish rapport with all participants, confidentiality explained and where necessary the researcher guided the course of questioning to obtain honest perceptions, opinions and feelings.

The current study found age related differences regarding adolescents' experiences of seeking health information online. Additionally, during interviewing it became apparent that participants did not consider mental health a part of their definition of health. Future research could explore adolescents' perceptions of mental health in terms of the implications it has on their overall health as well as exploring adolescents' experiences of searching for mental health information online. Exploring age related differences in regards to adolescents' experiences of seeking health information online is another direction for future research.

Previous studies from abroad (see Flicker et al., 2004; Goold et al., 2003; Larsen & Martey, 2001) advised that their adolescent participants never or rarely looked online for health information. A future investigation could examine health education in different countries, and how this impacts upon adolescents' use of the Internet for health information.

Adolescents are prolific users of and enjoy the Internet for its entertainment value and the instant connection it provides to their friends. They recognise the Internet is a resource teeming with information, but do not always access it. Nevertheless, when a need or purpose arises, adolescents readily engage the Internet to seek health information. The Internet has become a popular choice for conveying health information to adolescents (Peattie, 2002),

however, if adolescents do not have a reason to search for health information, they will miss the message. Therefore, it is imperative that legitimate health purveyors foster and sustain adolescents' interest on their first visit to their website, by integrating credible health information with adolescent-friendly entertainment (Goold et al., 2003). Adolescents are amenable to becoming consistent users of health websites, if they think the information is helpful and directed towards them (Chisolm et al., 2011). In this way, opportunities and benefits are created for adolescents, who will soon bear full responsibility for their own healthcare (Christie & Viner, 2005).

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**Appendix A**

## Interview Schedule

Before we begin, I would like to take this opportunity to thank you for your participation in my research project. Please remember that what we discuss will not be traceable to you in my final report. You are free to withdraw or not answer questions as you see fit. Your participation and what you have to say are of great value.

Notes (for researcher to fill out)

First name:

Age:

Gender:

Grade at school:

Public or private school:

1. Tell me about your Internet use.
2. Can you tell me about the reasons why you have looked online for health information.
3. How do you find health information online?
4. Can you tell me about the types of health information you have ever looked for online or are interested in finding online.
5. Have you ever discussed the health information you have found online with anyone else?
6. Can you tell me about your experiences with the health information you find online.
7. How do you judge whether the health information you find online is accurate and trustworthy.
8. What devices do you use to find health information online?
9. Do you think you would accept a request or “like” a health related organisation on a social networking site?
10. Is there anything that you would like to add that you think I need to know?

Non-specific prompts

Can you tell me more?

What do you mean by that?

**Appendix B**

## Facebook Status Update

Hi friends. As you may know I am currently involved in research as part of my Honours degree at Edith Cowan University. As an enthusiastic seeker of health information online, I have decided to explore the experiences of adolescents aged 13-17 years old, living in WA, who have sought health information online. Through examining where Western Australian adolescents are seeking health information on the Internet, by means of which devices and understanding what their experiences are of using the Internet for health information, this study will deliver information to health services to provide targeted health messages and improved delivery methods for health messages to adolescents living in WA. Participants are being recruited initially through this status update, after which I will send you, the parent or guardian an information sheet and consent forms. If you allow your son or daughter to participate in the interview and answer questions about their online health information experiences, they will be asked to sign a consent form and participate in one to three, one on one Skype or in person interviews with myself lasting between 20-45 minutes in duration. Your adolescent's participation is voluntary and if they choose to participate, they will be free to withdraw or not answer questions as they see fit. This research has been approved by ECU'S School of Psychology and Social Science Ethics Subcommittee. Once the study is completed the data will be stored securely at ECU and will not have any identifying information about your child. If you have any queries about this research project, are interested in finding out more or would like your adolescent to participate please do not hesitate to contact me through a Facebook personal message and I will send you a thorough information sheet about my research. Thanks for your time.

**Appendix C**

## Information Sheet Provided to Parents/Guardians of Adolescents

Hi, thank you for your time and interest in my research project. As you are probably now aware, I am currently involved in research as part of my Honours degree in psychology at Edith Cowan University, Joondalup. As an active seeker of health information online, I have decided to examine the experiences of adolescents aged 13-17 years old, living in Western Australia, who have also sought health information online.

The purpose of this study is to examine where WA adolescents are searching for health information on the Internet, by means of which devices and what their experiences are of using the Internet for health information. There is currently no WA data on such a purpose and the findings of this study, potentially, could be used to generate more informed, local health messages and improved delivery methods of health messages aimed at adolescents living in WA.

Participants are being recruited through my recent Facebook status update, followed by the distribution of this letter to you the parents or guardians of an adolescent between the ages of 13 to 17 years, who live in WA. Please discuss my research with your son or daughter to determine if they have used the Internet to look for health information (such as fitness, nutrition, general health, illnesses, diseases, drugs, alcohol, smoking and sex education) and if they would like to participate. If you both agree, please sign the consent forms, which also include consent for audio recording of the interview. Recording the interview means an accurate record of the conversation can be analysed. Please return the consent forms in the stamped self-addressed envelope provided. All information will be kept confidential and once the study is completed the data will be stored securely at ECU. Publication of this research will not have any identifying information about your child. This study has been approved by ECU's School of Psychology and Social Science Ethics Subcommittee.

If you decide to allow your son or daughter to participate, they will be required to take part in between one to three, one on one Skype or in person interviews with myself with the majority completing only one interview, which should last between 20-45 minutes. They will be asked to answer questions about their experiences in searching for health information online. The interviews will take place at an agreed time and where necessary, location.

Participation in this research is voluntary. If you and your adolescent decide to participate, you or your adolescent will be free to withdraw from the research at any time or your adolescent may choose not answer questions as they see fit, without consequence. Participant privacy and the confidentiality of information disclosed by your son or daughter are assured, excluding circumstances where the research team is legally required to disclose that information.

In the unlikely event that your son or daughter becomes upset due to this study, support is available via a number of avenues, including the telephone numbers of counselling services which will be handed/mailed/sent to you prior to the first interview. Where necessary, the researcher would also ask the participant if a follow-up phone call could be made, to check the participant's welfare and status on speaking with a parent, guardian or other adult. If during the course of the interview the researcher considers that details have been disclosed by your child which places them or any other person's safety and welfare at risk, then you will be informed in order that you can exercise your options regarding your parental duty of care.

If you have any questions about my research project, please do not hesitate to contact me on 0422 479524, or my supervisors, Julie Ann Pooley on 6304 5591 and Myra Taylor on 6304 5728. Alternatively, if you have any concerns or complaints about my research project and wish to talk to an independent person, you may contact the School of Psychology, Fourth Year Honours Coordinator, Andrew Guilfoyle at ECU Joondalup on (08) 6304 5192 or a.guilfoyle@ecu.edu.au (.) Thank you for your time.

Lee-Anne Martins  
lmartins@our.ecu.edu.au

**Appendix D**

Parental Consent Form

I, \_\_\_\_\_ parent/guardian of \_\_\_\_\_ have read the information sheet provided and agree that my adolescent son/daughter may participate in the research conducted by Lee-Anne Martins of Edith Cowan University. I understand the purpose of the study and what is required of my son/daughter. I understand participation is voluntary with no remuneration. My questions have been answered satisfactorily. I give my approval for the data obtained from the interviews to be used in the aforementioned research. I understand that my son/daughter's name and any other identifiable information will be treated confidentially and will not be used in any publication of this research. The only circumstances where privacy and confidentiality are not assured are where the researcher is legally required to disclose such information. I understand that I, or my son/daughter can withdraw from this study at any time without penalty or my son/daughter can refuse to answer any question/s as they see fit, without consequence. I understand that the researcher will only disclose information to me regarding my child's answers if the information they have disclosed places them or any other person's safety and welfare at risk. Additionally, I give permission for the interview to be digitally recorded and understand that this recording of my son/daughter will be destroyed once the interview has been transcribed.

\_\_\_\_\_  
Signed: Parent/Guardian

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contact Phone Number

\_\_\_\_\_  
Contact Email

\_\_\_\_\_  
Signed: Researcher

\_\_\_\_\_  
Date

**Please return your consent form in the self-addressed stamped envelope provided.**

**Appendix E**

## Information Letter to Potential Snowball Participants

Hello. As your friend may have discussed with you, he/she has recently participated in some research as part of my Honours degree at Edith Cowan University. I am currently seeking further participants to take part in my study.

I am an enthusiastic seeker of health information online, so I have decided to explore the experiences of adolescents aged 13-17 years old, living WA, who have sought health information online.

Through examining where Western Australian adolescents are seeking health information on the Internet, by means of which devices and understanding what their experiences are of using the Internet for health information, this study will deliver information to health services which can then produce customised health messages and improved delivery methods of health messages to adolescents, like you, living in WA.

To be involved in this study would require that you participate in one to three, one on one Skype or in person interviews with me. The majority of people will complete only one interview lasting between 20-45 minutes in duration. You will be asked to answer questions about how and why you use the Internet to look for health information at an agreed time. This study has been approved by the university's School of Psychology and Social Science Ethics Subcommittee. Once the study is completed the data will be stored securely at ECU and will not have any identifying information about you.

Parental permission is required and I ask that you discuss this study with your parent/s or guardian. If they give permission, I will send an information package, which includes a consent form for you and your parents/guardian to sign.

Your participation is voluntary and if you choose to participate, you (or your parent/guardian) will be free to withdraw at any time and you can decide not answer questions as you see fit, no problems.

If you are interested in finding out more about this research project or would like to participate please do not hesitate to contact me on 0422 479524 or [lmartins@our.ecu.edu.au](mailto:lmartins@our.ecu.edu.au) and I will send you and your parent/guardian an information package about my research. Thank you for your time.

Yours sincerely

Lee-Anne Martins



**Appendix F**

Participant Consent Form

I, \_\_\_\_\_ have read the information sheet provided and agree to participate in the research conducted by Lee-Anne Martins of Edith Cowan University. I understand the purpose of the study and what is required. I understand my participation is voluntary with no remuneration. My questions have been answered satisfactorily. I give my approval for the data obtained from the interviews to be used in the aforementioned research. I understand that my name and any other identifiable information will be treated confidentially and will not be used in any publication of this research. The only circumstances where privacy and confidentiality are not assured are where the researcher is legally required to disclose such information. I understand that I can withdraw from this study at any time without penalty or refuse to answer any question/s as I see fit, without consequence. I understand that the researcher will only disclose information to my parents/guardian regarding my answers if the information I have disclosed places me or any other person's safety and welfare at risk. Additionally, I give permission for the interview to be digitally recorded and understand that this recording will be destroyed once the interview has been transcribed.

\_\_\_\_\_  
Signed: Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contact Phone Number

\_\_\_\_\_  
Contact Email

\_\_\_\_\_  
Signed: Researcher

\_\_\_\_\_  
Date

**Please return your consent form in the self-addressed stamped envelope provided.**

**Appendix G**

## List of Counselling and Medical Services

Kids Helpline	1800 551 800	<a href="http://www.kidshelp.com.au/">http://www.kidshelp.com.au/</a>
eheadspace	1800 650 890	<a href="http://www.eheadspace.org.au">www.eheadspace.org.au</a>
Lifeline	13 11 14	<a href="http://www.lifeline.org.au/">http://www.lifeline.org.au/</a>
Family Helpline	9223 1100	
Sane Help Line	1800 688 382 (Mon–Fri 9am–5pm)	
Reach Out	<a href="http://au.reachout.com/">http://au.reachout.com/</a>	
Ybblue	<a href="http://www.ybblue.com.au">www.ybblue.com.au</a>	
It's Allright	<a href="http://www.itsallright.org">www.itsallright.org</a>	
Health Direct	1800 022 222	<a href="http://www.healthdirect.org.au/">http://www.healthdirect.org.au/</a>
Princess Margaret Hospital	9340 8222	<a href="http://www.pmh.health.wa.gov.au/">http://www.pmh.health.wa.gov.au/</a>
Royal Perth Hospital	9224 2244	<a href="http://www.rph.wa.gov.au/">http://www.rph.wa.gov.au/</a>
Armadale Child Development Service	9391 2220	
Fremantle Child Development Service	9418 1177	
Midland Child Development Service	9250 4333	
State Child Development Centre	9426 9444	
Somazone	<a href="http://www.somazone.com.au">www.somazone.com.au</a>	
The Black Dog Institute	<a href="http://www.blackdoginstitute.org.au">www.blackdoginstitute.org.au</a>	
National Drugs Campaign	<a href="http://www.drugs.health.gov.au">www.drugs.health.gov.au</a>	