Parents, internet, and adolescents’ health behaviours

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Abstract

Introduction
Health behaviour is detrimental to the pathways to adulthood. Internet becomes an important way for parents to get support and to exchange information. Therefore, a scoping review and interviews with mothers had been conducted to map knowledge to investigate the extent to which the internet is being used by parents to access information relative to their adolescent’s health behaviours.

Method
Scoping review was used to identify articles related to the topic. The literature search was conducted on two databases, PubMed, and PMC. In addition, semi-structured interviews conducted by telephone with mothers based in Sweden. Content analyses were used to describe common themes.

Result
The searches on the PubMed and PMC electronic databases detected 274 items. Only 9 articles were relevant and matched the criteria that were relevant to the topic. Most of the studies have been conducted in developed countries such as the United States and Australia from 2004 to 2020. During semi-structured interviews, using the internet was described as a supportive tool for mothers.

Conclusion
The gap was clear due to the low number of the identified articles. New studies should be conducted in developing countries. Demographic influences should be considered regarding participants recruitment for interviews.

Key words
Social cognitive theory, Parents, Mothers, Adolescents, Internet, Health behaviours, Health information.
Introduction
Lifestyle habits exert an impact on the quality of health. Thus, health behaviours such as poor eating habits, excess alcohol consumption, smoking, drug use, and physical inactivity are detrimental for health pathways into adulthood. These health behaviours are well known to constitute major risk factors for non-communicable diseases, such as cardiovascular and cancer diseases (Peters, Ee, Beckett, booth, Rockwood, & Anstey, 2019). Overall, non-communicable diseases such as cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases are the largest contributors to global mortality, (World Health Organization [WHO], 2008). Furthermore, these health behaviours have also been associated with psychosocial problems, such as inattention and internalizing problem (Marttila-Tornio, Ruotsalainen, Miettunen, Männikkö, & Kääriäinen, 2020).

For instance, poor diets and eating patterns lead to depression or poor mental health, as well as obesity and overweight (Khalid, Williams, & Reynolds, 2017). Thus, controlling eating habits remains crucial for child health. Backett, Wills, Roberts and Lawton (2010) as well as Albon (2005) suggest that controlling the children’s sweet-eating behaviour and focusing on a varied diet could develop healthier eating habits. Further, promoting vegetables, healthier fatty food, fruits, and limiting unhealthy food may prevent obesity. Health behaviours had potential effects to influence adolescents' emotional, cognitive, and social capitals. Thus, as a result, these sources of capital may affect adolescents' capacities to succeed in the labour and educational market, as well as in the marriage (Bauldry et al., 2016; Rindfuss, Swicegood, & Rosenfeld 1987).

Regarding physical activities, meta-analyses have confirmed a positive effect on children with respect to improved cognitive function (Sibley & Etnier, 2003), and better mental health (Ahn & Fedewa, 2011). Additionally, Nobrega, Vancampfort, and Koyanagi (2020) found in a cross-sectional study that physical activities had a positive effect on the body in general, especially in the prevention and treatment of common psychiatric disorders. Further, physical activity guidelines were associated with lower odds for suicide attempts among boys in 48 countries (WHO, 2014).

Another health behaviour is alcohol consumption where Donovan, Wood, Frayjo, Black and Surette (2012) stated that the harmful use of alcohol caused disease and social load in societies because it is a causal factor for more than 200 disease and injury conditions. Most notably associated conditions were alcohol dependence, liver cirrhosis, cancers, and injuries.
Additionally, alcohol is responsible for approximately 3.3 million deaths each year. In 2012, about 5.9% of all global deaths were attributable to alcohol consumption with 7.6% of deaths among males, and 4.0% of deaths among females. Alcohol consumption was ranked among the top five risk factors for disease, disability, and death (Donovan et al., 2012). Therefore, the harmful use of alcohol is a public health priority.

Tobacco smoking is a health behaviour that according to Marmot (2015) is responsible for causing biological ageing, heart disease and lung cancer. Further, West (2017) concludes that tobacco smoking led to the premature death of approximately six million people worldwide, through smoking-related diseases such as lung cancer, coronary heart disease, stroke, miscarriage, and underdevelopment of foetus. This is due to the concentrations of carcinogens and many toxic chemicals such as nitrosamines, benzopyrene, and carbon monoxide. Furthermore, tobacco smoking in both women and men reduce fertility.

**Health behaviours in childhood and adolescence**

Risk behaviours including smoking, alcohol use, illicit drug use and eating behaviours, often begin and develop in childhood and/or adolescence. West (2017) described that in most countries, the common age of first trying a tobacco cigarette was at the age of 10-15 years. Also, positive association were found for tobacco smoking, alcohol use, and other substance use. However, strong negative associations were found for tobacco smoking prevalence, educational level, affluence, and mental health.

In a longitudinal study conducted on 1,222 seventh-grade students (aged 13 years) in the city of Stockholm, Sweden examined gender differences regarding the risk of heavy episodic drinking with follow-up two years. A result from logistic regression analyses showed that 13% (N=578) of the boys and 12.8% (N=644) of the girls reported heavy episodic drinking at least once in the seventh grade and two years later in the ninth grade, 46% of the boys and 38.8% of the girls reported heavy episodic drinking at least once. Regarding smoking, the risk factor was higher for girls with 13.6% compared to 8.3% for boys (Danielsson, Romelsjö, & Tengström, 2011).

In general, the use of alcohol, smoking, and illicit drugs peaks in late adolescence, due to increased prevalence of high alcohol consumption, everyday smoking, and any illicit drug use across adolescence. The risk increases with grade and is most common in the 2nd year of upper
secondary school. Moreover, girls are more susceptible to smoking and boys are more susceptible to illicit drug use (Åslund & Nilsson, 2013). This is also confirmed by Hale, Fitzgerald-Yau, and Viner (2014) that found adolescence to be associated with an increased risk of mortality induced by health risk behaviours, relative to other age groups. This is because of accidents and unintentional injuries that occur at early initiation of health risk behaviours, such as drinking, addiction, and smoking. Further, these health risk behaviours are linked with consequent illicit drug use and abuse, which, in turn, lead to poor sexual, mental, and physical health. Moreover, these health risk behaviours are linked to lower occupational and educational attainment, throughout adolescence and adulthood.

Additionally, Lovell (2016) suggests that one should focus on childhood because this time is a sensitive period that could impact food choices later in life. Further, Kessler, Amminger, Aguilar-Gaxiola, Alonso, Lee, and Ustün (2007) found that adolescence is an important stage for mental health problems that begin to develop early in childhood and persist into adulthood. Furthermore, according to WHO (2014) unhealthy behaviours of adolescents increase the risk of poorer health, not only in youthhood but also later in life, which makes adolescents’ unhealthy lifestyles a global concern. Respectively, Viner et al. (2012) also suggest that adolescents and young children are more vulnerable to marketing and the price of food and drink. Moreover, commercial companies often try to promote high energy intake products and processed foods, which could lead to an unhealthy lifestyle. Therefore, adolescents should be considered as an important target group.

**Parents influence on offspring health behaviours**

Health behaviours are affected by the environment, and parents are considered as an important part of this environment. In a study on 406 adolescents of age 12-17 years who had parents who were smokers, it was noted that these children were more likely to be early regular smokers, involved in intense smoking patterns, where this risk increased with longer duration of exposure (Mays, Gilman, Rende, Luta, Tercyak, & Niaura, 2014). Thus, parents may transfer their health behaviours into their offspring.

Parents also play an important role in shaping their children’s attitudes towards the use of alcohol. For instance, this can be done through conversations with the children about the dangers and the negative sides of drinking alcohol such as addiction, and impact on physical and mental health (Sawyer, Coleman, Cooke, Hodgson, & Sherriff, 2018). Although, a
systematic review conducted by Gilligan et al. (2019) recently indicated that there are no clear benefits of family-based programs for reducing alcohol use among young people. Another systematic review conducted by Sharmin et al. (2017) found that parental supply of alcohol was associated with subsequent increased risky drinking behaviours in adolescence. For instance, in a Swedish cohort, parental offers of alcohol to their children aged 13 years were associated with increased risky drinking at the age of 15 years. Moreover, when the gender differences were addressed the association was significant for girls but not for boys.

Parents affect eating habits amongst their offspring, that is because the home environment affects children’s appetite by manipulation of dietary tastes, to encourage or discourage eating when fussiness and picky eating exist, as well as by restricting the food access when obesity exists (Backett et al., 2010; Gibson & Cooke, 2017). Further, Sawka, McCormack, Nettel-Aguirre, and Swanson (2015) suggest that the social context and environment that are represented by parents were determinants that influence adolescent's food choices and could thus influence diet and eating behaviour. Thus, parents constitute the perfect target for prevention and intervention since adolescents eating and drinking behaviours is influenced by many parenting factors, including general discipline, parental modelling, parental monitoring, parental supply, and parent-child communication. (Yap et al., 2011).

Parents influence the pathways to adulthood of their children because they help in shaping adolescents’ health behaviours, both genetically and via social learning processes (Bauldry et al., 2016). Further Laws et al. (2019) suggest that both mothers and fathers are to impose important influence on their children’s diet, physical activity, and obesity risk. Recently, the use of internet and smartphone have increased rapidly and therefore, serving as a new tool for parents to influence their children’s health behaviours.

The role of the internet for parent influence

According to Pretorius, Johnson and Rew (2019) internet has become an important way for parents to get support and to exchange information. Internet technologies in all its forms, from social media platforms, blogs, medical webs, smartphone applications, to online communities have a profound impact on people's life. For example, 80% of American internet users seek health and medical information online (Hohman et al., 2011). Additionally, 90% of parents in Australia use the internet and 96% of them report using it to search for medical information about their children's health (Yardi, Caldwell, Barnes, & Scott, 2018). In present-day, internet
technologies are widely used by adolescents and thereby can be used by parents to communicate with their adolescents (Park & Kwon, 2018). In Sweden, the internet is widely used given that Sweden was ranked number one in the world list, the World Wide Web Index, of countries with the best web infrastructure and best web usage (Bonfadelli, 2002).

In a qualitative study conducted by Ammari, Kumar, Lampe, and Schoenebeck (2015) it was found that mothers were participating more than fathers with posts on social media platforms throughout their publishing activities. These findings offered some evidence that the internet, in particular, is used by mothers in order to influence behaviours among their adolescents’ offspring. Besides, a prior study conducted by Schoenebeck (2013) found that mothers used anonymous websites to talk about children and to collect information anonymously. That is because mothers felt more comfortable in this way than sharing posts face-to-face on social media, like Facebook.

Furthermore, Doub, Small and Birch (2015) showed that mothers were highly engaged with internet use, especially with social media to discover more about children’s eating practices and what to feed their offspring. Moreover, a study by Duggan and Lehnhart (2015) suggested that mothers are more likely than fathers to give and receive support on social media in an attempt to obtain knowledge on how to raise their offspring. Some researchers even suggest that mothers hold a uniquely important target audience for internet-based interventions. That is because of their proximal influence on adolescents’ eating behaviour and their high engagement with social media platforms (Doub et al., 2015; Park & Kwon, 2018).

Research on internet activities related to healthy subjects has, in general, focused on three broad themes including seeking health information, the use of internet to contact health care providers and for internet-based interventions or preventions (Li, Xu, Li, & Meng, 2019). Unfortunately, studies that address how parents’ use the internet to influence their offspring health behaviours are scarce. One study, by Nicholl, Tracey, Begley, King, and Lynch (2017) suggests that parents who used the internet to gather information on their children’s condition improved their knowledge and understanding of their children’s condition. Essentially, the internet provides an extra opinion. Another qualitative study by Van der Gugten and co-workers (2016) found that searching for information on the internet can give parents a feeling of usefulness, confidence, and satisfaction that may be meaningful to help their children. In nuanced understanding, Jaks, Baumann, Juvalta and Dratva (2019) found in a cross-sectional study on Swiss-German parents that despite the availability of information up-to-date, parents faced the
difficulty of finding clear information on the internet and not knowing which information is reliable.

Given that internet may have the potential for parents to search for information related to their offspring and can increase parents’ knowledge of how to influence and deal with their adolescent’s risky health behaviours, knowledge of this topic is a warrant. One literature review has previously examined the literature of parents’ online behaviours, but their offspring health behaviours were not included (Dworkin, Connell, & Doty, 2013). Thus, no systematic approach has been undertaken to synthesize the knowledge of how parents used the internet to influence offspring health behaviours. Consequently, the present thesis will conduct a scoping review to gather literature and information that are related to how parents use the internet to influence offspring health behaviours. Further, as previously highlighted, the mother’s use of the internet may be especially useful when it comes to influencing their offspring health behaviours given their extensive use of the internet. Consequently, the present thesis will, in addition, conduct a smaller qualitative study to get more knowledge about how mothers search and give health information to their children. As well as what is the feelings/perceptions associated with the parents’ use of the internet.

Theoretical framework

This thesis applies Social Cognitive Theory (SCT) to understand how mothers receive and deliver information that is related to their adolescents’ offspring health behaviours and to understand how they use the internet to influence these health behaviours. According to (Bandura 1989) “Social cognitive theory in its totality specifies factors governing the acquisition of competencies that can profoundly affect physical and emotional well-being as well as the self-regulation of health habits” (Bandura 1989:624). The SCT provided a framework for understanding how humans’ activities shape and are shaped. Three major key concepts explained human behaviour which stood for: triadic reciprocal determinism, observational learning, and self-efficacy (Bandura, 1989).

The triadic reciprocal determinism

Bandura’s triadic reciprocal determinism indicate a mutual influence between personal factors, behaviours, and environment (three things = triadic) and indicate that not only environment influence people, but also personal factors change the environment. For instance, parents represent a part of the environmental influences that affect adolescents’ behaviours. Somehow,
parents’ influence is affected also by personal factors, such as cognition. Bandura explained that social factors play an influential role in cognitive development. Overall, cognitive development is a result of production that involves intention, creation, maturational factors, and information gained from exploratory experiences. Human learning aims at developing and maintaining cognitive skills on how to gain and use knowledge for future use. With increased age, human judgment, and problem-solving depends more on specialized knowledge domains and on others who are well informed on the matters of concern. For instance, when parents gain health information and/or contacted health care providers from the internet to find answers for their wonder, the information they gain is socially imported knowledge that could increase or decrease the cognitive growth (Bandura, 1989).

**Observational learning**

The SCT posits that behavioural change is influenced not only by internal and external factors but also by observation. Observing the mass media can thus influence individual behaviours because the conversations on social network services are similar to traditional face-to-face conversations. As well as observing the models or idols serve as instructors, motivators, social facilitators, and emotion arousers. Overall, learning from models may take varied forms, including cognitive competencies, new behavioural patterns, judgmental standards, and generative rules for creating new forms of behaviours. For instance, when parents observe a conversation or a health care provider on the internet, that may change their thoughts to deal with their adolescent’s risky health behaviours (Bandura, 1989).

Bandura (1989) claimed that observational learning occurs through a sequence of four processes such as the attentional processes, which determines what information that is selected for observation in the environment and what information they extract from what they notice. Second, the retention processes, which account for remembering the observed information. Third, the production processes, which involve reconstructing the memories of the observations or conceptions to be translated into appropriate courses of action. Fourth, the motivational processes, which explain that people do not perform everything they acquire unless the acquired learned behaviour results in valued outcomes. That is because, if observational learned behaviour has unrewarding or punishing effects, the observer is less motivated to reproduce it. Moreover, one is motivated by the successes of others who are similar to himself.
Self-efficacy

Self-efficacy referred to beliefs in one's capabilities to organize and execute a task or action. Self-efficacy is not only influenced by the individual’s capability, but also by other people around who might have a positive or negative attitude towards a specific behaviour. For instance, an adolescent whose parents are smoking might not expect to get positive influence from them to quit smoking. Consequently, models can be a source of motivation and inspiration because, during observational learning, models could increase or decrease the observer’s belief in their self-efficacy (Bandura, 1989).

Aim of the thesis

To conduct a scoping review of how parents, use the internet to access information related to their adolescent’s risky health behaviours and in addition, examine how mothers experience the internet as a tool for influencing offspring health behaviours. Three research questions are formulated to address the scoping review and four research questions are formulated to address mothers experience of the internet.

Research questions

1. How many empirical studies have been published since May 2020 on how parents used the internet to influence their adolescent’s risky health behaviours
2. What types of internet activities (health information, use of internet to contact health care providers, and internet-based interventions) by parents have been reported in the published studies?
3. In the published studies, do parents perceive benefits or disadvantages in their use of internet?
4. How mothers used the internet to find information about adolescent health behaviours?
5. Why mothers searched for information about adolescent health behaviours using the internet?
6. What were the feelings/perceptions associated with the parents’ use of the internet for this matter?
7. How mothers distributed information to their adolescent offspring?
Materials and methods

A scoping review approach was used to identify articles related to the topic. Arksey and Malley (2005) likewise Levac, Colquhoun, and Brien (2010) stated that literature reviews can be conducted methodologically in many various ways. For instance, some reviews were claiming to be meta-analyses or fully systematic, with a strong focus on quality assessment of the selected studies, whereas other literature reviews were traditional reviews or scope oriented with more focus on the research findings. This literature review was related to the scope-oriented category, so-called scoping review. This literature review principally focused on what we knew about parents’ use of the internet related to adolescent’s risky health behaviours. Thus, it did not discuss the quality of the included studies. Therefore, this literature review was explorative.

The literature search was conducted in May 2020 on the websites PubMed, and PMC. These electronic databases were the US National Library of Medicine (PubMed.gov) and National Institutes of Health (PMC). After inclusion and exclusion criteria were applied, the result showed that nine articles were related to the study’s aim. These articles were published between 2004 to 2020. Relevant data from these articles were extracted and analysed.

Search strategy for scoping review

Inclusion and exclusion criteria for scoping review

The search process consisted of several steps, the first step included entering a search string presented below in PubMed and PMC. All items from the search were screened through titles only in the first step. Second, if a title was relevant, the abstract was read. Third, if the abstract seemed relevant for the review, the full text was read. Fourth, if the full text was relevant, the article was evaluated with respect to the study’s inclusion criteria.

The inclusion criteria were that the articles had to be in English and had to focus on the use of the internet by parents to find health information relevant to adolescents’ risky health behaviour. The author defined parents and the internet as when parents used the internet to seek support and information about health behaviour. Articles should target adolescents from 10 years to 20 years of age. If an article did not mention an age of the children, then the author could look at the context, if the context did not show any age category, then the article could be included. That is because sometimes the age of the children ranged for instance from 6 to 17 years and thus overlapped with the study’s criteria.
All study designs were eligible for inclusion, including those that utilize qualitative or quantitative methods. The criteria for exclusion were if the items were not focusing on the above-mentioned definition of parents, health behaviours, and the internet. For instance, articles with internet-based guides related to diseases were excluded for not being relevant, as well as articles related to infants or children under the age of ten. However, note that the author did not exclude articles based on their quality.

**Search string**

The literature review was based on an approach called the "building block". According to Marchionini (1995) this approach builds keywords and terms combined in one block, and this strategy is widely used. In the present study, the block included related terms for instance, (Adolescent[Mesh]) and other related terms. The exact search string that was used is presented below.

```
((Adolescent[Mesh]) OR (child*[Title/Abstract]) OR (adolescen*[Title/Abstract])) AND ((internet [Mesh])) AND ((parents [Mesh])) AND ((health [Mesh]) OR (behavior*[Title/Abstract]))
```

**Semi-structured interviews**

Semi-structured interviews were used to investigate how mothers search and give health information to their children. As well as what were the feelings/perceptions associated with the parents’ use of the internet. Semi-structured interviews were used because it were widely used in the human and social sciences and were characterized as a skin to “a conversation with a purpose” (Leavy, 2014, p. 363). There are many benefits of the semi-structured interview format, especially when it is conducted individually through telephone. Individual interviews with one interviewer and one interviewee have many advantages such as, allowing the interviewer to lead the conversation in a direction that is useful in relation to the interviewer’s research interests. It is easier for the interviewer to create an atmosphere of trust and discretion. It allows keeping confidentiality especially when the information is personal and sensitive or taboo (Leavy, 2014). Furthermore, according to Shuy (2002); Leavy (2014) the telephone interview, has presently become the dominant approach. Moreover, telephone interviews reduce interviewer effects and could reach more interviewees who live far from the interviewer. Also, it gives more accurate responses due to contextual naturalness.
Data collection for the qualitative study

Data were collected between March and May 2020. A total of five interviews were conducted by telephone. The author performed all the interviews. The material from the data collection was analysed by thematic analyses (Saldaña, 2013). Later, the results from the interviews were compared to the results of other related studies. The matched data from other studies were collected by surfing in these databases (PubMed.gov) and (PMC). Sometimes snowballing method was used from the indexes of the articles.

Participants

Interviews were conducted with five mothers, age 24-50, between March and May 2020. Two of the participants were native Swedish. Whereas three were Swedish citizens with a foreign background. All were living in Sweden. The mothers’ occupations were: Two mothers were teachers, one was a seller, one was a master student, and one was working with teenagers who use drugs. The interviews lasted between (7.16 – 21.58 minutes) with 13.33 minutes on average. In total, all the mothers had children between the age of 4 to 28. The total gender were eight boys and seven girls.

The study’s criteria were targeting the population in Sweden, and the sample had to be mothers of all ages in Sweden who had children between 12-21-year-old who used the internet to find information. This study was approved by the Stockholm University in Sweden. All mothers were given written informed consent after they received a consent form from the interviewer. Before the start of each interview, a consent form was sent by mail and sometimes by Facebook messenger to each participant. The consent form was to inform respondents that the interviews would be recorded and treated confidentially. For instance, the answers would be de-identified, and that no information would be attributed to specific persons. As well as that participation was voluntary, and participants have a right to cancel their participation in the study at any time. An interview guide was used, which included six main questions, and one to three follow-up questions for each main question. Some examples of the main questions were: Can you tell me about yourself? Can you please describe how you use the internet to find information about adolescence health behaviours? For more questions, see appendix 1.

The participants were recruited using a snowball technique, through social network and social contact. Social contact meant both friends of friends and people who the author knows. According to Newman (2003) a social network was a set of people or groups who had or share
some pattern of contacts or interactions between them. The patterns could be friendships or connections between individuals or business relationships. The outcome depended on the network structure, for example, in an experiment called the small world of Milgram. The authors studied the acquaintance network by asking participants to pass a letter to one of their acquaintances in their network to get it to assigned targeted individuals. As a result, most of the letters in the experiment were lost, but a quarter reached the targeted group. Thereafter, the authors concluded that the social network studies suffered from problems of inaccuracy, subjectivity, and small sample size. For that reason, the author in the present study targeted people on Facebook as the first contact by posting announcements to different groups that belonged to parents and mothers. Consequently, the author got only one participant from Facebook. Therefore, the author turned to friends of friends later.

**Data analyses for the interviews**

The study was descriptive, and all data were collected across participants through semi-structured interviews by telephone calls, which were recorded only with sound through an app called *Call Recorder*. Then the data were transcribed and analysed by the interviewer. Two interviews were translated from Swedish to English because the participants refused to speak English. The other three interviews were in English. Some interviews were transcribed at the same time as the new interviews were conducted. Each respondent was addressed with a different ID number. The analyses were structured in line with the process described in the *Coding Manual for Qualitative Researchers* by Saldaña (2013). The interviews were compared with existing codes to identify similarities and differences as well as frequency and correspondence. Later the codes were grouped into categories.

The content analyses were used in three steps. First, the participants’ responses were divided and sorted into domains or topic areas that were already existing and that were relevant to the aim and research questions. For instance, during sorting of the answers, it was found that some answers to a specific question might fit another question. Then, core ideas, which was a summary of what was said was constructed within each domain for each individual case for comparison. That was the codifying process, were the author arranged things in a systematic order, to make something part of a system or classification, for categorization. In the last stage, the categories were developed to describe the common themes which had been reflecting in the core ideas within domains across cases. As have been shown in the literature, themes are the outcomes of coding (Leavy, 2014; Saldaña, 2013).
Results

Literature review

Results of the database searches

The PubMed database search detected a total of 240 items. The author read all the 240 titles, and through that, 48 articles were checked by reading abstract or full text for deeper identification. After reading those articles, five articles matched the criteria that were relevant to the topic of parents, health behaviour, and the internet. The PMC database search detected 34 items. Of them, four articles were identified to be relevant to the topic of parents, health behaviour, and the internet. As a result, from both databases, a total of nine studies were found, and most of them were conducted in the United States and Australia. These nine studies were presented in Table 1.
Table 1. Characterisation of the papers included in the scoping review

<table>
<thead>
<tr>
<th>Reference</th>
<th>Database</th>
<th>Year/Country</th>
<th>Methodological approach</th>
<th>Participants</th>
<th>Title</th>
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<tbody>
<tr>
<td>Source</td>
<td>Year</td>
<td>Country</td>
<td>Methodology</td>
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<table>
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<tr>
<th>Author</th>
<th>Year</th>
<th>Country</th>
<th>Method</th>
<th>Sample</th>
<th>Study Description</th>
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Scoping review’s characteristics

The period of publication of the articles was from 2004 to 2020. Two of the articles were published in 2020, and one in 2018. The other articles were published in 2004, 2011, 2012, 2013, 2014, and 2015. Respectively, four of these studies were conducted in the United States and three conducted in Australia, while, one in Sweden and one in Italy. Most of the articles were using quantitative methods. Of the nine identified publications, four were using surveys and three using telephone interviews. Also, five of the nine identified publications were using intervention programs. The sum of all the participants in all the identified articles were 4,887 participants. The selected studies were summarized in different topics as indicated below.

Types of internet activities

Health information

A survey conducted by Cohall, Cohall, Dye, Dini and Vaughan (2004) in the USA, found that parents have an interest in obtaining information about a variety of adolescent health issues including HIV, sexually transmitted infections, mental health concerns and relationships with family. A total of 419 parents, 14% used the internet as a health information resource (n = 53), whereas 9% thought that their children were getting health information on the internet (n = 34). Furthermore, only 7% preferred the internet to be a source of health information for their adolescents (n = 27). Additionally, 62% of parents wanted to learn how to better use the internet. Further, 23% used the internet every day compared to 26% who never used the internet.

Walsh, Hamilton, White and Hyde (2015) found that 43% of parents in Australia sought child health information on the internet. Also, parents felt rushed to seek online health information when they do not receive general lifestyle advice from doctors. Yardi and colleagues (2018) investigated parents’ online medical information-seeking behaviour. This included sources of information, reasons for searching, use and assessment of information. From 308 questionnaires, 90% of participants reported searching for medical information about their child’s health and most participants were more likely to use Facebook groups. Further, Bianco, Zucco, Nobile, Pileggi, and Pavia (2013) gathered information about health topics and found that 41% of 1039 parents report looking for a diet, body weight, or physical activity information and 17% for smoking.
The use of internet to contact health care providers

The internet can be used as a tool to contact health care providers, Thorslund et al. (2014) examined the extent of how the parents are interested in municipality-based parental support programs with a focus on gender differences. The result shows that mothers are interested in all forms of parental support, except a webpage for parents. Wingo and colleagues (2020) noted that parents valued contact with tele coach through coaching calls more than the use of websites. Scull et al. (2020) suggested that media are sexual socialization agents for adolescents. Therefore, it could encourage early risky sexual activity.

Internet-based interventions

Donovan et al. (2012) used intervention to increase the communication between parents and their adolescents about alcohol use and how to reduce risks associated with alcohol use. As well as to use protective behavioural strategies regarding alcohol stopping or limiting drinking. The authors found that parents participated in an online intervention to have communication about protective behavioural strategies and they used those strategies to change the manner of alcohol drinking among adolescents. Further, 75% of parents had a score of 42 points or lower on a scale ranged from 21 excellent communication to 105 poor communication. Elsewhere, Yap and colleagues (2011) provided a web-based program which included modules to provide practical tips, troubleshooting, and encouraging health behaviour change, as well as described the development of the parenting strategies regarding adolescent alcohol misuse. The authors found that parents actively surfed in the web-based parenting program to get guidelines and feedback regarding adolescent alcohol misuse.

Thorslund et al. (2014) showed through telephone interviews with a total of 1744 Swedish parents, that mothers showed more frequent interest than fathers in all forms of parental support. Overall, in light of these findings, the result indicated that 40% of the parents answered that they never look up for information about parenting on the internet. Further, the more parents used the internet for parenting, the more interest they had in municipality-based parental support. Scull, Malik, Keefe and Schoemann (2020) provided evidence that a program called Media Aware Parent was an effective web-based program for parents who were seeking to enhance parent-adolescent communication and for impacting their adolescents’ sexual health outcomes positively. Overall, parents reported satisfaction with their assigned resources therefore, 44% of parents shared content with children. Besides, Wingo et al. (2020) conducted
a pilot intervention study to explore the usability of a platform which consists of web-based tele coaching system that provides digital health resources and human interaction through phone calls from a tele coach compared to tele coaching alone. These programs were to achieve diet and physical activity behaviour change, through dietary and physical activity recommendations. Their result indicated that there were no significant differences in dietary intake or physical activity were seen within or between groups.

**Advantages and disadvantages of the use of the internet**

Cohall et al. (2004) found that parents with limited internet skills might lack the ability to accurately search for valuable health information on the internet. Internet use requires language skills and that may be a barrier for some minorities. For instance, Latino parents were less likely to access health information on the internet, as compared to African American parents. That could be due to the dearth of Spanish-language content compared to English. Further, a sensible advantage is that 39% of all adolescents reported changing in their behaviours because of online content. Moreover, 53% of adolescents say that they have had a conversation with a parent about something they have seen online.

Advantages of the use of the internet were described by Walsh et al. (2015) where internet had significant benefits on behavioural beliefs such as having instant access to information, using a free or non-costly service, being in control with a child’s health, feeling reassured, having a broad range of information available, making it easy to access information. Other advantages included finding up-to-date information about a child’s health/development, having increased understanding, and feeling about a child’s health/medical condition. Also, it is easy for parents to diagnose and treat symptoms without the need for medical intervention. The disadvantage was that parents felt overwhelmed by too much information.

Donovan and colleagues (2012) found that parents who were participating in an online intervention, were more likely to discuss with their adolescents the protective behavioural strategies regarding alcohol stopping or limiting drinking. Further, adolescents whose parents were participating in the intervention were more likely to use these protective behavioural strategies compared to adolescents whose parents did not participate. Moreover, Wingo et al. (2020) found that website resources including shopping guides and recipes were helpful. Further, participants would be more likely to use the platform if it were presented as a mobile app rather than a website. Scull et al. (2020) stated that the intervention improved the quality
of parent-adolescent communication and that was rated by both parents and youth. Further, youth reported more positive attitudes about sexual health communication such as contraception/protection. Also, reported more self-efficacy to use contraception/protection.

Disadvantages of the use of the internet were described by Yardi et al. (2018) that parents were unsure about the information which were found on the internet, and most of the parents, 69% wanted guidance on searching. The advantages were to know more information and to prepare questions if they had a meeting with a doctor. Bianco et al. (2013) reported that the internet provided communications and education tool for parents. Although 59.9% of parents visited websites sponsored by physicians or medical associations, only 16.9% of parents did not care about health-related information reliability. Yap et al. (2011) stated that web-based programs were advantageous due to their anonymity, flexibility, accessibility, and implementation. That allowed automated tailoring to match the strengths and needs of each parent, self-monitoring, personalization, and rehearsal.

**Result from the qualitative study**

Mothers used the internet to find information about adolescent health behaviours in different ways. For instance, Maria a 34 year old woman described that she used different sources by writing down some keywords on the government website and by contacting family members and health experts on Facebook. Another mother, Johanna (45 years old) had been using a smartphone and searching by uploading pictures on the internet and using government websites and watched Swedish TV such as SVT, Svenska Dagbladet, and BBC. Johanna said also that social media was a believable source. The 50 years old mother Angela was searching on Google and government websites such as 1177 and Socialstyrelse, while the 40 years old Lotta liked to search in Google, Instagram, and Facebook. The young mother Catrin (24 years old) was downloading apps in her language and she even stated that she searched for “Real pages for health experts, not fake pages owned by YouTubers”.

If something happens to my children and I wonder about it, I just search for it on the internet. For example, if they develop symptoms, like rashes, I think of illness, and then I search on a website called 1177 to see what it is (Angela, 50 years old).

After asking the participants about why you search for information about adolescent health behaviours using the internet. One mother said that she just wanted to make sure that what they eat at home was healthy for them. As well as to try to improve her judgment around deciding
which is good and which is not. That is because with only one source she could not be sure, while Johanna has been searching on the internet to find activities and to see where she goes and where she can find the best gym as well as to do funny things with her children. She used the internet also to check out for cinemas, and theatres, and nature experiences for her family. Also, she said that “if something I do not know, or I do not understand, I just check it out”, while Angela was searching on the internet for preventative health and for knowing more about the diseases. Catrin said I am searching on the internet because “I need to find good solutions to treat my child because it is not easy to find by myself”. Lotta said that she had been searching on the internet to gain more knowledge from different resources, and to keep the kids healthy, and to know how to deal with babies and attitudes.

I use the internet to see where we can go and where we can find the best gym. Also, to find out if there are any gathering for use for youngsters to do a funny thing. I check out for cinemas and theatres and nature experiences for my family (Johanna, 45 years old).

When I asked, the participants about the type of information that they are looking for all the answers were related to health. Maria was searching for diet, and exercise, while Johanna was searching for everything. That is because it was the fastest way for them to learn. Angela was searching for knowledge for the diseases. Catrin was searching for optimal eating habits, alcohol consumption and exercise as well as how to handle different situations for children, while Lotta had been searching for diets, nutritional, and health information.

Hmm, mostly is about diets that my children face, often, it is about nutritional information about the feeding of the kids, and how to keep my kids healthy. As well as habits like how to deal with babies, and attitude, Also, such related things (Lotta, 40 years old).

The most information I am seeking about is on a website called 1177, which deals with health and diseases information and related issues. Then if I wonder about something, I just google it. Then the most credible answer will appear first on the page (Angela, 50 years old).

All the mothers perceived benefits of using the internet. When I asked them about the advantage of using the internet, the mothers answered differently. According to Maria, the advantages were to discover new things and get information from new people. The mother was happy to find information about nutrition and food on the internet, especially the oats’ recipe. Also, Johanna felt that there was an advantage of internet use because she thought that it was the fastest way for her to learn and to find out things. The mother was comparing the internet with
books. She mentioned that she had plenty of books from an earlier time, but they were not updated, while the internet was up to date. The mother said that without the internet and telephone, life could be very difficult for her. That is because she would feel isolated. Catrin said that she could find some solutions for her children. Lotta said the advantage was to get more knowledge from different people, while Angela had been thinking that she could find an answer if she asks and searches on the internet.

I did not use to cook this kind of food in the past not for me, not for my children, but lately, I have understood how good it is and I have presented some recipes for my children, and they like them (Maria, 34 years).

I use the internet because I think it is the fastest way to find out things. Also, I am a teacher and I want to learn a lot by myself and I want to know new things. I am a very interested and curious person and always I want the best for my family and children (Johanna, 45 years old).

You get an overview if you are self-critical and if you are worried as a parent. Then you can search on the internet, and sometimes you can fill your concerns and confirm some things and when I see what others are asking. Then I can ask someone and get an answer (Angela, 50 years old).

When I asked about what the disadvantages are of searching for information online, the answers were shorter. For instance, Maria stated that she could not be sure about information. Johanna and Angela said that the problem would exist if the observer was not an expert to distinguish if the website was fake or real. Catrin stated that the disadvantage was to find the right people or experts because several YouTubers just wanted to advertise and announce anything on YouTube. Lotta said, “when things are not so good, I just get disappointed”. Johanna said, “you cannot be sure that this is true”. Angela said, “you must be conscious and self-critical and distinguish between the fake and the real websites”.

With the follow-up question, the mothers’ feelings and perceptions that were associated with the mothers’ use of the internet were collected. Maria was exposing her feeling strongly by repeating words when she noted that it was not enough for her by only looking at the internet and taking the information as guaranteed. Despite that feeling, she agreed that she was less stressed and more confident and secure. Johanna said broadly, “Everything about me is on Facebook, I am not afraid”. Johanna had been extremely secure because the internet gave her big security and she felt safe. Angela noted that Google shows the most valuable website at first in the search result and information about diseases in 1177 was the most credible information. Also, agreed that the internet was helping her to be secure, confident, and less
stressed. Catrin was not sure about the pages on YouTube and needed real health experts. Lotta felt more confident, less stressed by reading more and more. She said, “Yeah, as long as I am anonymous, I feel secure as long as I do not expose my personal information”.

No no! it is not enough for me. If I find that it is something interesting, I might ask my family’s doctors. For example, I might ask some people that I know who gymnasts are or who are trainers, who know about these things, but I definitely will not take it as guaranteed. You know I do not take something for guaranteed that is for sure (Maria, 34 years old).

I really like being at this time, this internet time, because this is helping me a lot and even help the children, but the funny thing they do not want to be on Facebook. They do not want to be even on Instagram. They have Snapchat which I do not agree with. That is the difference (Johanna, 45 years old).

Google shows the most valuable website at the first page and I think the information about diseases at 1177 is the most credible and I think it has the most valuable information, the internet helps me to be secure, confident, and less stressed (Angela, 50 year old).

The last main question was about how mothers distribute information to their adolescents’ offspring. The answers had been quite similar. The delivery of information to the children was according to Maria by applying the information practically for instance, when she was finding some type of foods, which was good for health, she just cooked it and presented for her children. As well as by face to face, or by referring to social media. Johanna said that she gave the information mostly immediately by saying it, for example, she usually says “look here what I found out”. Sometimes she was doing a screenshot, and then she was sending it to them, as SMS or MMS. Angela felt that the most important thing was to deliver the information correctly she said, “I try to adapt the information to the age of the children so they can understand correctly”. Catrin liked to deliver the information in a natural way without he/she knows. As well as by face to face. Lotta liked to deliver the information face to face too. She argued that delivering information depends on what topic and behaviour. She said, “I sit down with my child, and talk about the disadvantages”.

How I give it? I just say it or if I hear that some type of food is good for their health, I just cook it and serve it for them. Maybe at the beginning, they may find it strange but then with time, they may like most of the things that I offered to them (Maria, 34 years old).

Yeah, mostly I give the information to them immediately, I just say look here what I found out. Then they have to watch, but they are not so impressed
always. Sometimes, I do a screenshot, and then I send it to them (Johanna, 45 years old).

When I asked about which is the sensitive information that is not giving to the child. Participants responded differently. For instance, Maria was not giving information that had to do with an extreme diet. She also said that she never gave information about pills for diet and things like that. Lotta said that she gave everything, and she described a situation about if her children came to a website that was not for children by mistake, then she could discuss that immediately with her children. Angela also said yes, it depends a bit on what it is about. She gave an example of a deadly disease that it was not recommended to be said to the children at the beginning of the disease. Catrin said that if she saw an advertisement about unhealthy food, then she would not tell her child. That is because she did not want him to go and buy it because she did not want him to eat it and become overweight. Lotta said that sensitive information depends on the age of the child, but it could be when it comes to the internet.

I am not giving the information that has to do with an extreme diet like eating one kind of food, fasting, because I think that in their age, what they need is a proper diet. They need to eat healthily. They need to eat from all kinds of categories of foods and try to avoid unhealthy things (Maria, 34 years old).

Regarding the question, the time they start searching for information, Maria said since she had children. Johanna said before having children. Angela said from the time internet existed. Catrin, said when my child was ten years. Lotta said when I got children. The last follow up question was what the children think about the information. This question was to understand the child's response to information. Maria said that the children felt satisfied and happy, and found the information useful. Despite that, she could not be sure that her children were always applying this information to themselves. That was why she said that she was always trying because sometimes they do it and sometimes, they do not. She said, “At the beginning maybe they find it strange but then most of the things that I offer them they like them”.

Johanna said that her children did not respond well, and they were not impressed and not so excited always, but they followed what she was saying to them because she is a typical mother. Angela said that the children were happy with the information. Catrin said that sometimes the children think it is good information when she was giving them the information in the right way because young people do not like parents to give them orders because they want to live free. Lotta said, “yeah, they take it because my child was trusting me more when I tell him to trust me because he knows that I know the best for him”.
Discussion

Method discussion

Scoping review

This was the first known scoping review that synthesized the literature on how parents used the internet to access information related to their adolescent’s risky health behaviours. Given that only nine studies were identified, it indicates that this is a relatively new area of inquiry. The present scoping review used search block called the "building block" to formulate a search string to examine the extent, nature, and range of research activity (Arksey & Malley, 2005). Through this block, the present review identified only 9 studies, of a total of 274 items in two databases. The range of research articles was published from 2004 to 2020. This finding also indicates a new area of research.

Regardless of the finding, there is still much to learn about the topic. Therefore, more databases should be investigated, and this field would benefit from additional observational research that draws from larger representative samples. The design of the study was inspired by Arksey and Malley (2005) who outlined a framework for a scoping study by including discussion of the advantages and disadvantages, as well as addressing the main sources and types of evidence available. This framework had been outlined by the author in three research themes: reporting the results of the database searches, presenting the types of internet activities, and the advantages and disadvantages of the use of the internet. These themes were chosen by the author to present the finding to make it easy for the reader to navigate in the result.

Semi-structured interviews

Racial/ethnic variation regarding parental use of the internet is essential when conducting interviews that target mothers from different backgrounds to influence and impact behavioural change. That is because according to Cohall et al. (2004) parents with limited internet skills may lack the ability to accurately search for valuable health information on the internet. Internet use requires language skills and that may be a barrier for some minorities. For instance, the length of the interviews was varying depending on the background of the participant. For instance, when the participants were native Swedish speakers, the participants showed more power to express themselves, compared to those who spoke Swedish or English as a second language. That is why some of the interviews were short. Moreover, translating the interviews from language to another did not lead to accurate expression. Furthermore, the difference
between the mothers’ answers could be influenced by their culture. For instance, Viner and colleagues (2012) found that living in a poor neighbourhood might be associated with smoking. Thus, the health of adolescents is affected by social factors at personal, family, community, and national levels. Therefore, understanding demographic influences before conducting similar studies is important.

The five interviews were not enough to reach the saturation of knowledge to conduct the analyses. Nevertheless, the analyses were structured, and the interviews were compared with existing codes to identify similarities and differences as well as frequency and correspondence for coding and categorizing (Saldaña, 2013).

Result discussion

Scoping review

The findings suggested that the most common research topic regarding parents’ internet activity was for internet-based interventions, with five articles. Then later for health information with four articles and then for the use of the internet to contact health care providers which was presented in three articles. Further, the most reported information which was searched online by parents were risky sexual activity, alcohol misuse, physical inactivity, and poor dietary intake. These topics may have been dominating due to their importance. Scull et al. (2020) showed that parents reported high levels of satisfaction with their assigned resources. Therefore, these benefits may lead to behaviour change and increased communication with their adolescent offspring. Behaviour change was also identified by Donovan et al. (2012) where parents who participated in an online intervention, learned, and used communication strategies to change the manner of their adolescent offspring’s drinking alcohol.

Interventions are recommended especially by municipalities to develop guides with attractive and informative webpages for parents, with some information specifically addressing fathers. That is because Thorslund et al. (2014) noted that fathers were more interested than mothers in local webpages for parenting. Besides, Scull et al. (2020) stated that the intervention improves the quality of parent-adolescent communication. Furthermore, Cohall et al. (2004) reported that adolescents changed their behaviours because of online content, which also could be explained by the SCT. Bandura (1989) that mass media influence the behaviours of the individuals because the conversations on social network services are very similar to traditional face-to-face conversations. Perhaps, when parents observe a conversation or a health care provider on the
internet, they may change their thoughts to deal with their adolescent health behaviours as the SCT theory postulates. In this study the author identifies communication in two articles which are conversations between parents and children, where, adolescents say that they have had a conversation with parents about something they have seen online (Cohall et al., 2004; Scull et al., 2020). However, both articles do not report how the information is delivered to children. That could indicate a gap in the body of research. Yet, if parents act as models for their children, then behaviour change would exist through conversation. The SCT theory postulates that the influences of role models serve as instructors, motivators, social facilitators, and emotion arousers (Bandura, 1989). Consequently, parents may impose influence on their adolescent offspring by sharing online contents about health behaviours.

The overall findings in this scoping review indicated a gap in the body of research where all articles had been conducted in developed countries, such as the USA, Australia, and Sweden. Therefore, the author suggests more studies to be conducted in developing countries to cover the gap of evidence. Besides, the results from the present interviews provided various answerers when immigrants and native Swedish citizens were combined in a study. For instance, immigrants were searching in webpages written in their languages. Therefore, these two data sources complement each other and enrich the knowledge to promote more studies to be conducted in developing countries.

Differences in internet utilization by parents of varying races/ethnicities were identified by Cohall et al. (2004) This may be of importance since it may reflect that internet use requires language skills. However, such racial/ethnic variation must be interpreted with caution. The result of this scoping review identified more advantages than disadvantages. For instance, having instant access to information, using a free or non-costly service, being in control with a child’s health, having a broad range of information available, and include finding up-to-date information (Walsh et al., 2015). Due to the low number of the identified articles and that they were conducted in developed countries only, there is a need to identify and map a body of evidence globally.

**Semi-structured interviews**

Regarding how mothers use the internet to find information about adolescent health behaviours. Participants have had in common some thoughts, three participants were searching on government websites, for example, one searched in a local medical website called 1177.
Besides that, three used social media to obtain information. Differences had been noted, for example, one searched for information by uploading pictures on the internet. One else by downloading apps, whereas others by watching TV. These similarities and differences have been explained by the SCT, Bandura (1989) who stated that social factors play an influential role in cognitive growth were cognitive growth is a result of production involves intention, creation, maturational factors, and information gained from exploratory experiences. Mothers aimed to develop and maintain cognitive skills to gain and use knowledge for future use. The differences could be related to the variation in age between mothers, that is because with increasing age, human judgment, and problem-solving could depend more on specialized knowledge domains and knowledge that has been imported socially.

Internet became an important way for parents to get support and to exchange information. Internet technologies in all its forms, from social media platforms, blogs, medical webs, smartphone applications, to online communities have a profound impact on people's life (Pretorius et al., 2019). Besides, Van Der et al. (2016) noted that parents feel anxious and responsible when their child displayed strange symptoms. That corresponds with the finding when the mother was searching on a medical website 1177 because probably that was a result of worries about a specific issue. The suggested theme was: Social media and government websites are the main sources of online information for mothers.

Regarding why mothers search for information about adolescent health behaviours using the internet, that is because mothers wanted to collect health information. For instance, three mothers were searching for diets and two were searching for exercises. That has been proven by Laws et al. (2019) that mothers report using the internet for information on child feeding and physical activity, while Bianco et al. (2013) noted that parents reported looking for information related to diet, body weight, and physical activity. This similarity and corresponds came to support child health, and due to the importance of health, mothers went to the internet to perfect their knowledge. That can be explained by SCT, Banduras (1989) which posits that the arguments about self-efficacy refer to beliefs in one's capabilities to organize and execute a task or action. Therefore, mothers wanted to get the knowledge to deal with their children’s needs. The suggested theme was: Mothers surf about diet and exercise to perfect their knowledge.

Regarding the feelings/perceptions associated with the parents’ use of the internet for this matter, mothers felt secure, confident, and less stressed by reading more and more, but at the
same time sceptical and unsure about the information. This discrepancy has been explained by SCT when people learn from models by observation, that is because people do not perform everything they learn unless the observationally learned behaviour results in valued outcomes (Bandura, 1989). This finding is proven by the finding from the present scoping review when Yardi et al. (2018) described that most parents are unsure about the information they found on the internet. Besides that, prior research supported this finding, since Jaks et al. (2019) found that 91% of parents were sceptical about the correctness of online information. Besides, Van Der et al. (2016) stated that the information from the internet has several limitations because it raises new doubts and insecurity among parents.

All mothers agreed that using the internet made them discover new things and get information from new people. This similarity and corresponds explained by SCT. When Bandura (1989) stated that the most valuable knowledge is communicated socially. Further, these advantages can be explained by the finding from the scoping review where Bianco et al. (2013) stated that the internet provides communication and education tool for parents. As well as when Walsh et al. (2015) stated that the internet has significant benefits due to the instant access to information, non-costly service, up-to-date information, feeling reassured, being in control with a child’s health through having increased understanding, and feeling about a child’s health/medical condition. Suggested theme was: *Mothers are using the internet for discovery despite the unsure information.*

Regarding how mothers distributed information to their adolescent offspring, mothers distributed the information practically by face to face and by referring to social media as well as by doing screenshot and then send it as SMS or MMS to their children. Mothers did not give information that has to do with extreme diet and pills for diet. Also, they did not give information about deadly diseases and advertisements for unhealthy food. Nevertheless, children felt satisfied and happy, their response to the information that had been given by mothers was not always interesting, that could be why sometimes children did not respond well. That could be related to observational learning. Bandura explains in his SCT four processes that could explain why children do not respond always well. The combination of all these processes leads to different results depending on the extent of these processes. For instance, the extent of attentional processes and what information children extract from what they notice. The extent of retention processes that account for remembering the observed information. The extent of production processes which involve reconstructing the memories of
the observations or conceptions to be translated into appropriate courses of action. The extent of motivational processes explains that people do not perform everything they learn unless the observationally learned behaviour results in valued outcomes. Also, the influences of models can serve as instructors, motivators, inhibitors, disinhibitors, social facilitators, and emotion arousers (Bandura, 1989). This finding had been related to the result from the interviews when Johanna and Lotta, argued that they are typical mothers, that is why their children listened and applied the information they gave to them. Consequently, a mother must be a role model for her/his child. The suggested theme was: Mothers distribute information to their offspring in different ways and the best response is for typical mother

Consequently, this qualitative study supported the scoping review with knowledge and inspiration about some topics that could be missing in the identified articles, some of the themes that had been generated in the present qualitative study confirmed the result from the identified articles. For instance, using the internet for discovery despite the unsure information (Jaks et al., 2019; Yardi et al., 2018; Van Der et al., 2016). Further, in the other direction, some topics that had been presented in this qualitative study were not presented in the identified articles from the present scoping review. For instance, what information was not given to the adolescents, how parents delivered the information to their offspring, and many others behavioural related issues such as illicit drug use were rarely. These topics could be gaps in research. Therefore, future studies should focus on these topics.

Strength and limitations of the study

A scoping review is a way of research that identifies and map relevant literature in the field of interest to address research gaps (Arksey & O'Malley, 2005). Therefore, this type of approach has a potential effect to address answers to the study’s aim. That is because, in contrast to the systematic review which aims to provide answers to specific questions, a scoping review is less likely to seek to address very specific research questions. Besides, the nature of the scoping review is to focus on breadth, rather than focusing on depth (Arksey & O'Malley, 2005). Therefore, it is beneficial to the aim of the present study because the aim included many types of areas such as alcohol misuse, smoking, physical inactivity, and poor dietary intake. However, this aim is not specific therefore this is an appropriate method to adopt.

In a nuanced manner, the potential problems of the present study were the choice to include only two electronic databases PubMed and PMC. Therefore, the identified literature in the
scoping review may be limited with some probability that items in other databases could be missed. Further, this review was limited by the small number of identified studies, which could be due to many factors, such as the author’s decision to focus on articles from the US databases, and that included articles which were written in English. Formulating both the search string and search words may also limit findings. For instance, the use of the term parents had resulted in more relevant findings, but we may have missed studies specific to mothers or fathers. Therefore, this study lacks a systematic approach when identifying the included articles, especially because the author reviewed the article alone and that it is not two independent reviewers as in the systematic approach. What is important here, is how these biases could influence the results.

It is a good idea to support the findings from the scoping review with semi-structured interviews. That is because that could contrast the knowledge to find the gaps in the body of research, but due to the limited time and resources, there was a low participation rate. For instance, Facebook groups that belonged to mothers and parents were not an effective tool for recruiting participants. Many asked for money to participate. Recruiting from social networks could be effective if the author was allowed by research ethics to pay money for them. Therefore, the author did not reach his potential for using this approach. Consequently, the five interviews were not enough to reach the saturation of knowledge to conduct the analyses.

The qualitative study could be promising to support or verify previous research if it had a high participation rate and was reaching the saturation of the responses as well as it could be a promotion to generate new theories based on a solid analysis process. Therefore, in the future, more interviews should be conducted to explore the fact. To understand the matter of these findings, the author presented the data and then linked it to a core of concepts and social cognitive theory. Then later, some citations from some previous relevant studies were compared to the results of this study.

*Possible implications of the work*

This research is important to understand the contextual factors between the mothers-adolescents relationship. The collected data can be text analysed and used later in the future for acquiring deeper knowledge about the adolescents-mothers relation. Even will add information to the emerging body of research on internet use by parents. Qualitative research is appropriate to develop information about the values, beliefs, and behaviours of internet users. Single case
studies are useful in the illustration, development, and testing of theories. It will explain the role of the internet for parents as a potential channel for public health intervention. The scoping review identified important research gaps in the relation between parents, the internet, and adolescent’s risky health behaviours. This scoping review explored the parents’ motivations and online information-seeking behaviour. Thus, this review can be key for developing recommendations and policies.

Conclusion

Regarding the scoping review, studies show that internet use is expanding among parents, due to its advantages of getting contact and inspiration online. Further, few studies address the topics of risky health behaviours. The gap is clear in the body of research due to the low number of the identified articles. Furthermore, developed countries such as the USA and Australia are dominating this topic. Therefore, the author recommends that future research should be conducted in other nations, specifically in developing countries, to address the differences and to get a complete overview. Regarding the qualitative study, the approach is good, but it misses some functions such as changing recruitment methods and focusing on demographic influences. Therefore future studies related to these subjects are highly recommended.
References


Appendices

Appendix 1. Summary of the Interview guide

1. **Can you tell me about yourself? (Age, profession, and location)**

   **Follow up questions**
   How many children?
   How old are your children?
   What is the gender of your child

2. **What type of information are you searching for, on internet, that are relevant to your child? Such as eating habits, alcohol use, smoking and physical activity.**

   **Follow up questions**
   Why are you searching for this?
   When did you start searching for this?

3. **Can you please describe how you use the internet to find information about adolescent health behaviours?**

   **Follow up questions,**
   Can you describe in detailed how you find information? What websites? Which people (for example, family members on Facebook, health experts or government websites?)

4. **What are the benefits of searching for information online?**

   **Follow up question**
   Why? (inquiring here about perhaps stress, security, confidence)

5. **What are the disadvantages of searching for information online?**

   **Follow up question**
   Why?

6. **Great, can you describe how you give that information to your child?**

   **Follow up question**
   What information? Which information is not given to the child? Why/Why not?
   What did the child think about the information?
Appendix 2. Consent form

**Participation in interview study**

The study “Parents, internet and adolescents’ health behaviours” are carried out as part of my master’s program thesis at the Department of Public Health Sciences, Stockholm University. The aim is to investigate the extent to which the internet is being used by parents to access information relative to their adolescent’s risky health behaviours.

The interviews are recorded and printed verbatim. The interviews are treated confidentially and no information that can be attributed to specific persons will be reported. The result is reported primarily at training seminars and in the master’s thesis, possibly scientific article. Participation in the interview is voluntary and you have the right to cancel your participation in the study at any time. We need your sign to verify that you receive this information.

I wish to participate in an interview study on how the internet is used to gain information about adolescent’s health risky behaviours and in what way that information is distributed. I agree to record the interview and publish the result.

__________________________________________________________________________

Name:

__________________________________________________________________________

Date and place:

__________________________________________________________________________

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Appendix 3. Full interview guide

Aim of the thesis and ethical implication

Let me first introduce the aim of the thesis. The aim is to investigate the extent to which the internet is being used by parents to access information relative to their adolescent’s risky health behaviours. You should know also that participation in the study is completely voluntary and you can cancel your participation at any time. If you choose to cancel your participation, all information will be deleted, and your previous answers will not be used. You choose the ones you want to answer. It is only me and my supervisors who will know that I have talked to you. Your answers will be de-identified in the transcribe - that is, I will use fingered names and location. The result will be anonymized.

1. **Can you tell me about yourself?** (Age, profession, and location)

Follow up questions

How many children?

How old are your children?

What is the gender of your child?

2. **What type of information are you searching for, on internet, that are relevant to your child?** Such as eating habits, alcohol use, smoking and physical activity.

Follow up questions

Why are you searching for this?

When did you start searching for this?

3. **Can you please describe how you use the internet to find information about adolescent health behaviours?**

Follow up questions,
Can you describe in detailed how you find information? What websites? Which people (for example, family members on Facebook, health experts or government websites?)

4. **What are the benefits of searching for information online?**

   **Follow up question**

   Why? (inquiring here about perhaps stress, security, confidence)

5. **What are the disadvantages of searching for information online?**

   **Follow up question**

   Why? (inquiring here about perhaps stress, security, confidence)

6. **Great, can you describe how you give that information to your child?**

   **Follow up question**

   What information? Which information is not given to the child? Why/Why not?

   What did the child think about the information?