Internet Risks for Children: Parents' Perceptions and Attitudes

An Investigative Study of the Saudi Context

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Abstract—**Internet has become a part of our children's daily activities at home and at school. The benefits of the Internet for children are huge and include education and entertainment. However, the same technologies also pose some risks that parents need to identify and guard against. A lack of awareness can cause children to encounter serious danger and become victims of Internet criminals.**

To the best of the authors' knowledge, no previous research has been conducted in Saudi Arabia on parent's awareness of the risks of Internet use to their children and how Saudi's parents seek to mitigate those risks. This paper investigates the associations and correlations between what parents do and what children say about online risks. It compares and contrasts parents' mediation strategies and their children's online habits with the aim of investigating which parental mediation strategy has taken place to reduce the risk of online activity against children.

The findings indicate a substantial gap between what children do online and what their parents know. The majority of parents are interested in monitoring their children's online activities and collaborating with their children on those activities, but most parents also do not have a strategy for accomplishing this. The survey indicated an absence of collaboration between parents and children to ensure online safety. This is not a result of a lack of interest, but rather a result of a shortage of resources due to time constraints, and poor knowledge of the Internet, or lifestyle choices.

Keywords: Internet use; Internet risks; Children; Parental mediation.

I. INTRODUCTION

In recent years, Internet access has increased dramatically around the world. There has been a significant increase in access to, ownership of, and use of tablet computers by children of all ages. Elementary and secondary school students comprise a large percentage of the digital world and are characterized as digital learners [1], [2].

The number of children who believe everything they read on the Internet has significantly increased. According to an Ofcom study, "digital natives" are too trusting of what they find online [3].

Although the Internet is valuable, especially for educational purposes, it also involves serious risks, including child sexual harassment and the prevalence of child pornography. Several studies point out that the more children use the Internet, the greater the likelihood that they will encounter dangerous situations [4]. Parents' lack of awareness may mean that their Internet exposure has an undesired negative influence on children. If no protective polices are enforced, children might come across serious dangers and become victims of Internet crimes [5].

Research on the online risks to children must be constantly repeated due to the continuous evolution of digital media. Online risk is defined as set of intended or unintended experiences that increase the likelihood of harm to the Internet user. It includes encountering pornographic, racist, or hateful content online, and also inappropriate or potentially harmful contact such as

harassment and bullying [6]. However, these definitions may differ in different countries due to differences in culture, legal framework, and style of government [7].

This study analyses the key responses to a survey that was answered by both parents and children. The survey addresses the children's Internet activity, parents interest in and increased awareness of their children's digital activity, and investigates ways parents can control their children's online activity. No survey results on Internet risks to children have previously been published in Saudi Arabia. Thus, this study attempted to collect data that would help clarify Internet risks, particularly in the Saudi context, from the perspective of parents and children.

The paper is organized in the following manner: Section II describes related works. Section III presents the research methodology. Findings of the conducted research, with and the results are discussed in Section IV. Discussion are presented in section V. Finally, the conclusion and suggestions for future work are given in Section VI.

II. RELATED WORKS

A study conducted by Livingstone et al., in 21 European countries shows that 75% of European children are using the Internet, and the rate continues to grow– more than 65% of them have Facebook and MySpace accounts [8]. The risks of extreme Internet use has been documented worldwide. Recently, Internet use has increased significantly and excessive or extreme Internet use among children has been identified as a common problem in several international studies [11],[10],[11].

Grooming by online predators is a well-known risk. Grooming is an attempt by an adult to make friends with a minor, often under a fake identity and usually in a chat room, in order to induce the minor to accept unsuitable sexual communication or behavior [12]. The danger becomes even greater when the child agrees to a physical meeting with the unidentified adult met online. One study found that one in three teens (age 12-17) have experienced online harassment, and girls are more likely than boys to be victims of cyber-bullying and grooming (38% girls' vs 26% boys) [5]. A survey of 2,000 middle-school students in the southern US found that 10% of children had been cyber-bullied [13]. The Australian Covert Bullying Prevalence Study found that 27% of school students aged 8 to 14 reported having been bullied, and 9% reported bullying others frequently [14].

A study in Finland found that extreme Internet use was significantly linked with obesity in 16-year-old girls [15]. Chou and Hsiao [16] explored Internet use among Taiwanese students and found that extremely frequent Internet users experienced negative effects on their daily routines, such as missing meals and lack of sleep. Another study by Punamäki also found a positive correlation between excessive Internet use and sleep deprivation [17].

Singapore is a developed country with a high Internet penetration rate, and almost all children (98%) aged 7-14 have Internet access [18]. One study conducted in-depth interviews with a sample of Singaporean parents of primary-school children (aged 7-12) on their children's Internet use. The parents believed that the effect of Internet use on their children was more positive than negative and felt confident about their ability to manage their children's Internet usage. However, they also said that parents should communicate frequently with their children and educate themselves about the Internet in order to ensure a safe online environment for children.

Teimouri and Hassan [19] defined the level of risks faced by children online and examined the validity of 45 factors affecting online risk to children that were adapted from studies conducted in Europe and the US. The study included 420 schoolchildren from Malaysia. This study found that children were more likely to experience "unwanted exposure to pornography" than "conduct risk" (e.g., accidental illegal downloading, creating profiles on inappropriate websites). Boys and older children were more vulnerable to these risks than girls and younger children.

Martinez and Apodca analyzed the association between Internet use and parental mediation in a cross-cultural sample group [21]. The sample included 1,238 adolescents aged 14 to 19 from Spain, Latin America, and Ireland. The subjects of this study displayed a moderate amount of Internet usage with context-based variations. An investigative factorial analysis found that the main forms of mediation employed by parents were restrictions on Internet use and co-viewing. The study also found that parents find it harder to engage in instructive mediation and co-viewing of their children's Internet use than their television use, since the Internet is less user-friendly than television.

Lazarinis provided inclusive insight into the factors that undermine safe Internet access for children in Greece [22]. This study found that many of the recognized online risks exist in children's most-visited sites and that children are able to bypass restrictions to visit their preferred sites.

Blackwell [20] used data collected from a national sample of 442 8- to 12-year-olds in the US to examine children's Internet content preferences. This study found that YouTube and Facebook were the two most preferred websites.

European counties have many similarities, including several cultural and geographical aspects. However, there are differences among European countries in how parents address their children's online risk. The Eurobarometer survey found that parents in Denmark and Sweden have more confidence in their children than parents in other European countries. Consequently, they supervise their children's Internet use much less than parents in Germany, Greece, Ireland, Italy, Portugal, Spain, and the UK [21] . According to one study [22], certain parenting styles may be more common in specific cultures, depending in part on parental values.

Additionally, cultural values matter, and this especially affects ethical issues. These differences influence how much access researchers have to children without a parent being present. A study that included four different countries (Argentina, Egypt, Finland, and India) found that the approach to ethical aspects of the study varied significantly in these countries. For example, Finnish parents allowed the researchers to conduct in-depth interviews with their children. This could include very personal discussions, and the data obtained in these interviews was not made available to the parents. On the other

hand, Egyptian and Indian parents in the same study were unwilling to leave the youngsters alone with the interviewer [23].

Due to some cultural barriers, children may not report or even admit to being exposed to online risks while using the Internet or playing games. For example, some countries have cultural barriers that make it difficult for children to have an open discussion with their parents about sensitive words or inappropriate online content, such as sex and pornography [19]. Children fear to break such barriers and so do not report their exposure to these risks to their parents. However, further research needs to be done to determine whether this is a significant issue in Saudi culture.

Almogbel et al. examined the association between the parents' educational level in Saudi families and their level of control of their children's Internet usage. This study recognizes the broad influence of Saudi families' economic status on their control over children's Internet use. It proposes that demographic parental variables seem to have no effect on the level of control parents exert over their children's surfing habits. The study also illustrated the need for parents to be approachable so their children feel free to share their Internet surfing experiences [24].

III. RESEARCH METHODOLOGY

The study employed a mixed method approach where quantitative and qualitative data were collected in the form of online survey. Target population consisted of parents and their children in Riyadh, the capital of the Kingdom of Saudi Arabia – involving 60 participants, 30 parents and 30 children All children surveyed are aged 9 to 16 years. The survey was designed in a way that covers four 4 main sections including demographic, parent Internet uses, child Internet uses and Internet risks on children – from both parent's and children perspective.

IV. FINDINGS

To the best of author's knowledge, there is no survey results on Internet risks to children have previously been published in Saudi Arabia. Therefore, it is imperative to investigate the associations and correlations between what Saudi parents do and what their children say about online risks with the aim of understanding how Saudi parents mediate their children to reduce the risk of online activity to children. Thus, quantitative research in the form of a survey was conducted, involving 60 participants, 30 parents and 30 children. This study was conducted in Riyadh, the capital of the Kingdom of Saudi Arabia, through an online form. All children surveyed are aged 9 to 16 years. Results of this study were organized into groups and analyzed. The first part of the survey seeks to provide insight into the awareness levels of the parents surveyed about the dangers of Internet use to their children. Several studies have identified the negative impacts of Internet use on children. These impacts may be psychological [25], emotional [26], safety-related [27], and health-related [28]. Table 1 shows that a high percentage of parents are, to an extent, aware of the risk the Internet poses to their children. Parents' biggest concerns are the

potential risks to their children's privacy and safety, followed by the psychology impact of Internet use.

Table 1. Parent Awareness Level

Do you imagine that Internet use might have any of these negative impacts on your children?	Parents
Psychological: Altering the children's way of thinking.	93%
Emotional: Changing the way children feel	76%
Safety-related: Internet access can put privacy and safety at risk	96%
Health-related: Internet overuse can lead to obesity and other health risks	90%

If parents are aware of the risks but do not implement any form of mediation, the reasons for this need to be identified. The following possible reasons were explored:

- Lack of technical knowhow:

  Some parents may want to mediate their children's Internet usage. However, a lack of technological savviness and/or complete lack of understanding of how the Internet works may hinder their efforts to do so.

- Time constraints and social barriers:

  While some parents may not mediate because of a lack of skill, some may not due to factors such as time constraints owing to the number of children/devices involved, work commitments, social norms, etc.

In both cases, the recommended action is to carry out further research in the area of parental mediation to provide actionable methods that enable parents to achieve their objectives.

Table 2 compares the parental mediation of employed vs. unemployed parents. The literature review indicated that parents' employment status could affect the level of mediation they provided, or at least the amount of time they spent with children while they use the Internet [24].

Table 2. Employed vs. Unemployed Parents

How do parents mediate their children's Internet use?	Employed	Unemployed
Encourage children to explore and learn things on the Internet on their own.	27%	57%
Share activities together with your child on the Internet.	17%	42%
Talk to your child about what he/she does on the Internet.	41%	57%
Sit with him/her while s/he uses the Internet.	13%	42%

Overall, there is a lack of parental mediation in both groups. Figures show that 87% of employed parents do not sit with their children while they use the Internet, 83% do not share activities with them, and 60% do not even talk to their children about what

they do online. These numbers were also low for unemployed parents: 58%, 58%, and 43%, respectively. More than 50% of unemployed parents encourage their children to learn things on the Internet on their own, whereas less than 30% of employed parents do.

It can be said that unemployed parents provide more mediation than employed parents. Further investigation is needed to identify the reasons for this lack of mediation.

Parental technical mediation, such as online filters, can reduce the online risks that children encounter. Table 3 compares parents' use of such techniques based on their level of education.

Table 3. Parents' Educational Level

Use of technological mediation	Highly educated parent/Reason		Less-educated parent/ Reason	
Do you have a smartphone application to monitor and control your children's devices?	75% don't have	I think it might not be useful	80% don't have	Do not know how to use it
Would you be interested in having an application in your smartphone that helps you monitor and assist your children online?	88% would be interested		60% would be interested	

Table 3 shows that most parents, both educated and uneducated, do not currently employ smartphone technology to monitor their children's Internet usage. On the other hand, a high percentage of the same groups would not mind having an application to monitor their children's Internet use.

The data also shows that parents with higher levels of education are more interested in using technology to filter/ monitor their children's activity than less educated parents. However, 75% of educated parents do not currently utilize such methods due to doubts about their efficacy, and they have not used or investigated such applications even once.

It is crucial to explore children's points of view regarding their parents' monitoring of their online activity. This section seeks to explore children's points of view, taking their age into consideration as children's age can also affect parent mediation, as several studies have suggested [29].

Table 4. Parental Mediation from Children's Perspective

Do your parents:	% 9- 12	% 13- 16
Explain why some websites are good or bad?	85	89
Know what you do on the Internet?	55	44
Sit with you while you use the Internet?	23	0
Encourage you to explore and learn things on the Internet	47	77
Do shared activities together with you on the Internet?	19	44

Help you when something bothers you on the Internet?	57	44

According to the survey, 85% of children aged 9 to 12 years said that their parents have explained to them why some websites are good or bad, and a slightly higher percentage of children aged 13 to 16 said their parents had explained this as shown in Table 4.

Over half of the preteens (9-12) surveyed feel their parents know a lot about their online activity, while less than half of teens (13-16) surveyed do not. This is also supported by a low percentage of parents in both groups: 23% in preteens and 0% of teens reported that their parents sit with them while they use the Internet. Again, this shows that the parents encourage online independence for both of these age groups.

It is worth noting how much children trust their parents' ability to protect them online if necessary. A lack of trust in their parents' ability might prevent children from asking for help. Table 5 the responses of boys and girls on this point.

Table 5. Trust in Parents' Ability (Children's Opinion by Gender)

How true are these for you?	Girls	Boys
I know more about the Internet than my parents, so I don't need my parents' help online.	28%	12%
I believe that using the Internet is safe, so I don't need my parents' help online.	0%	6%

Both male and female children surveyed do not feel they are more knowledgeable about the Internet than their parents. Very few of the children surveyed—and none of the girls—believe that they do not need their parents' help online. Only 6% of the boys surveyed indicated complete competence. This supports the answers to the questions about parental assistance with issues that bother children on the Internet. Over 50% of both preteens and teens indicated that their parents provide assistance when things bother them. This shows that children typically desire some input from their parents about their online activities.

Several gaps were identified between reported usage, indicating a substantial disparity between the parents' perception of their children's Internet use and how much time children actually spent online.

Table 6. Time Spent Online

Children's Average Time Spent Online			
Time	< 1 hour/day	1-3 hours/day	> 3 hours/day
Parent	8 %	55 %	24 %
Children	20 %	33%	50 %

The highest percentage of children reported over three hours of daily Internet use, as shown in Table 6. However, the highest percentage of parents reported one to three hours of Internet use daily. Less than 25% of parents thought that their children used the Internet for more than three hours a day. This information gap is significant, as a fundamental requirement for effective monitoring of any kind requires an awareness of the subject's activity levels, comprising access periods and frequency.

Over 56% of parents do not actively monitor their children's online activity. However, unmonitored Internet usage can

trigger an Internet addiction, which has associated risks, including sleep deprivation due to online activity that runs into the night, poor social skills owing to less interaction with peers and neglecting important tasks such as homework [4].

80% of parents indicated that their children must have some sort of permission to carry out certain online activities, including:

- Downloading music or films.

- Watching video clips online (e.g. on YouTube).

- Having his/her own social networking profile.

- Uploading photos, videos, or music to share with others.

This further demonstrates the need for parents to be aware of when these activities are taking place. The issues identified above can be mitigated if parents or other authority figures are aware of such potentially harmful activity when it occurs. This enables them to implement remediation procedures. To do so, parents need tools that can help them monitor the time that their children spend online. Such tools should allow parents to intelligently and carefully monitor their children's online activities so that parents can know exactly what their children do online. This would enable effective monitoring and awareness of children's online activity.

Parents want to guide their children to facilitate safe and responsible Internet use. However, as shown in the children's survey, they often don't monitor their children as much as they would like to. The responses to our survey indicated that more than 50% of children set their social profile account to public, so everyone can see it. More than 20% of the children surveyed do not know how to set their account to private. This is especially relevant since more than 12% of children surveyed have more than 100 people in their contact list.

The survey also examined parents' biggest worry about their children's online activity. About 73% of parents worry about their children being contacted by strangers and seeing inappropriate material on the Internet, and more than 50% of the children surveyed have unprotected or potentially exposed profiles. This suggests that parents are not aware of their children's activities or do not understand them. There is a gap between parents' knowledge of their children's activity—and therefore their ability to take action regarding it—and the children's actual online activity.

The survey also assessed parents' ability to help their children with online problems and their children's opinion of those abilities. The question was: *"To what extent, if at all, do you feel you are able to help your child to deal with anything on the Internet that bothers them?"*

None of the parents indicated a high level of confidence in their own ability to assist their children with such issues. It is worth noting that over 50% of the children surveyed also expressed a lack of confidence in their parents' ability to assist them with issues encountered online.

The survey also indicated that parents were not always aware of where their children were using the Internet. More than 24%

of children reported accessing the Internet from their friend's homes, while parents thought they did not go online at friends' homes, as illustrated in Table 7.

Table 7. Access Location

Location	Child's Bedroom	Living Room	Friend's Home
Parents	10%	66%	0%
Children	22%	78%	24%

The number of children in a family also affects parenting styles. In larger families, parents exert less control over and support for children's Internet use than in smaller families [3]. Twenty-six percent of the parents surveyed reported having three children living with them, and 36% reporting having more. It can be inferred that about 60% have at least three children to supervise. Since 83% also reported having more than two Internet-enabled devices, this suggests more opportunities for a child to access inappropriate material and to face online risks with less supervision. While a parent or guardian can manually monitor each child's activities on each device, this may not be a practical solution, depending on the number of children and devices.

V. DISCUSSION

The majority of studies on this topic have examined the risks to children associated with Internet access, without examining how these risks are mitigated by parental mediation. Furthermore, most similar studies surveyed parents but not children. However, children's perspectives on these topics are critical to reaching truthful and balanced conclusions [30].

Current studies on children's Internet access, related risks, and the role of parents used samples drawn entirely from developed countries. There is no research addressing these issues in developing countries. Several countries have launched initiatives to protect children from Internet risks. For instance, EU Kids Online seeks to provide information about European children's online opportunities, risks, and safety. Although these risks are universal and require a global approach, many efforts to develop child online protection are national rather than global. Thus, a global response is needed.

English has always dominated web content [31]. According to *The Guardian,* native Arabic speakers represent about 4.5% of the world's population. However, less than 1% of the total global online content is in Arabic, and less than 0.2% of global digital content is hosted in the Middle East or North Africa [32]. If parents do not understand what their children do online, they cannot support their children and/or mediate their Internet use. This study was conducted in Saudi Arabia – a country where children use the Internet frequently and their parents are native Arabic speakers. The culture and lifestyle are different, and online risks to children in this country have not been previously investigated.

It can be said that there is a gap between children's and parents' perspectives. This gap can be noticed in several parts of this survey, including time spent online, places that children access Internet, and the amount of help provided to children regarding online activity.

Furthermore, the number of children in a family affects parenting styles. Parents of larger families often exert less control and offer less support to their children regarding Internet usage. The majority of parents in this survey have three children or more to supervise, and the majority of children in the survey have access to more than two Internet-enabled devices, this means that children have significant opportunities to access inappropriate material and face online risks with minimal supervision. Furthermore, there is a substantial gap between what children do online and what their parents know they are doing. However, a number of parents indicated an interest in their children's online activity, so it can be deduced that the absence of monitoring indicated by the survey exists, because of a lack of resources (time, Internet knowledge, etc.) rather than a lack of interest.

VI. CONCLUSION AND FUTURE WORK

This study investigated parents' opinions of their children's Internet use and children's perspectives on their parents' support of their online activities in Saudi Arabia. Several gaps were identified between children's reported usage (parents vs. children), indicating a substantial disparity between parents' perception and their children's actual online activity. This survey represents an initial step towards understanding parents' and children's attitudes toward Internet usage. Further research is required to more deeply examine the underlying questions. Future work might include a focus group discussion with the aim of clarifying parents' feelings, perceptions, and opinions about their children's Internet use; for example, exploring how parents start open discussions with their children about sensitive or inappropriate online content, and examining what sort of parental mediation enables them to achieve their goals of protecting their children online.

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