Parents' Perception of Protective Method Regarding the Risks of Mobile Applications Used by their Adolescent Children

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Abstract

Background: Mobile applications developed to promote online safety for adolescent children are underutilized and rely heavily on parental control features that monitor and restrict their child's mobile activities. Parents should use mobile apps that allow to monitor and restrict their children's activities online. **Aim**: This study aimed to assess parents' perception of protective method regarding the risks of mobile applications used by their adolescent children. **Research design:** A descriptive design was used in this study. **Sample:** A purposive sample included 375 parents who have child in age between 10 to 19 (Adolescent), have a smart phone and use internet. **Setting**: Home visit in Elbawity at Bahariya Oasis -Egypt. **Tool of data collection:** One tool included four parts, **1st part:** Socio-demographic characteristic, **2nd part:** Prevalence rate of mobile phone use, **3rd part:** Parents' knowledge about risks of mobile application uses and protective methods, **4th part:** Parent's reported practice about protective methods used. **Results:** 55% of the studied parents had poor knowledge. While 15% of them had good knowledge. 60% of studied parents had unsatisfactory reported practice and 40% of the studied parents had satisfactory reported practice. **Conclusion:** More than half of the studied parents had poor total knowledge, also less two third of them had unsatisfactory total reported practices regarding mobile risks. There is statistically significant relation between parents' sociodemographic data, their knowledge, and reported practices. **Recommendations:** Provide health education program for parents and design booklets about risks of mobile application uses and protective methods.

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Keywords: *Adolescent Children, Mobile Applications, Parents' Perception, and Protective Method.*

Introduction

Adolescent children, refer to children who are in the transitional stage between childhood and adulthood. Adolescents may spend excessive amounts of time on mobile applications, which can negatively impact their physical health, mental well-being, and academic performance. But mobile applications can be platforms for cyberbullying, where adolescents may face harassment, threats, or humiliation from their peers. This can have serious emotional and psychological consequences. Adolescents may come across inappropriate or harmful content, as violence, explicit material, or hate speech while using mobile applications. This exposure can be detrimental to their emotional well-being and values *(Azevedo et al., 2022).*

Parents protective measures have open lines of communication with their adolescent children about mobile app usage. Communication is vital for fostering trust and addressing concerns. Assess whether parents are actively monitoring their adolescent children's mobile application usage. This can involve reviewing the apps installed on their device, checking privacy settings, and keeping an eye on their online activities. Determine if parents are utilizing parental control features available on mobile devices or through third-party apps. Parental control tools allow parents to set restrictions on app downloads, screen time limits, and content filtering *(Rattanaburi, & Vongurai, 2021).*

There were 6.65 billion smartphone adolescent children's worldwide, representing 83.07 % of the world's population own smartphone on December 31, 2022. Nearly, 52.35 % of them was the adolescent children. Egypt's internet penetration rate stood at 71.9 percent of the total population at the start of 2022. Nearly, 55.02 % of them was the adolescent children, which faced multi risks as mood disorders, stress, anxiety, depression, intimacy and sexuality, predatory behaviors, online sexual encounters, sex talk, and solicitation for sexual images and sex acts are associated with mobile technology use *(Sarkar et al., 2020)*.

Mobile technologies used and mobile applications an important factor is parents' awareness of the potential risks associated with mobile applications. This includes understanding the types of risks, as exposure to inappropriate content, online predators, cyberbullying, and excessive screen time. Assess whether parents have been educated about the risks and the measures that can be taken to protect their adolescent children. This can include guidance on app selection, privacy settings, and online safety practices *(Alanzi, 2021)*.

Parental perception of protective methods and awareness regarding the use of mobile applications are essential to ensure the safety and well-being of children. Here are some methods and tips to help parents protect their children set age-appropriate restrictions, many mobile devices and app stores offer parental controls that allow to set age restrictions on app downloads and access to certain content. Make sure to enable these controls and set appropriate restrictions based on child's age. Educate adolescent child, teach child about responsible use of mobile applications and the potential risks associated with them. Help them understand the importance of privacy, not sharing personal information with strangers, and being cautious while interacting with others online *(Eisenhut et al., 2020)*.

Monitor app downloads, regularly check the applications adolescent child has downloaded and review their content and ratings, can consider using parental control apps that allow to monitor and manage child's app usage. Approve app permissions, some apps ask for permission to access various features on the device, as location, camera, or contacts. Teach child to be cautious while granting permissions and to only allow access necessary for the app's functionality. Encourage open communication, create a safe environment where child feels comfortable discussing their app usage and any concerns adolescent child may have. Encourage them to report any inappropriate behavior or content they encounter while using mobile applications *(Hassandoust et al., 2021)*.

The role of a community health nurse (CHN) in relation to mobile technologies and mobile applications is multi-faceted. They can develop and disseminate health-related content through mobile apps, provide access to resources and information about healthy living, and promote preventive health practices *(Reif et al., 2022)*. CHN can educate adolescents and their parents/guardians about the potential risks of using mobile technologies. CHN can provide information about online safety, cyberbullying, privacy issues, and the importance of responsible digital citizenship. guide and teach adolescents about maintaining healthy digital habits. This can include setting limits on screen time, promoting a balanced lifestyle with physical activities and social interactions, and encouraging healthy online behavior *(Davies et al., 2021)*.

Significance of the study

Egypt's young population the adolescents (aged 10–19) are around 17 million, representing approximately 19% of the total population The risk of mobile application and internet is a major problem in 42.3% of the students suffered from mild Internet addiction, 35.1% suffered from moderate Internet addiction, and 3.6% suffered from severe addiction. 31.5% were risky gamers and 10.5% were disordered gamers; 34.3% had problematic social media disorder and the highest observed psychiatric disorders were major depressive episodes 9.3%, generalized anxiety disorder 7.7%, alcohol dependence 4.4%, attention-deficit hyperactivity disorder 4.4%, social phobia 4%, and a higher percentage of psychiatric disorders among severe Internet addiction 88.9% and among moderate addiction 70.6%, disordered gamers 92.3%, problematic social media users 60%, and a higher mean of hours spent online per day of 6.8 per day *(El Fiky et al., 2022)*.

Aim of the study

This study aimed to assess parents' perception of protective method regarding the risks of mobile

applications used by their adolescent children through the following:

1. Assessment of parents' knowledge regarding risks of Mobile application uses and protective methods used.

2 Evaluating parents'reported practice regarding protective methods used.

Research Questions

1- What is the level of parents' knowledge regarding risks of mobile application uses and protective methods used?

2- What is the level of parents'reported practice regarding protective methods used?

SUBJECTS AND METHODS

Research design:

A descriptive research design was applied to achieve the aim of the study.

Study Setting:

This study was conducted in Bahariya Oasis through home visit in Elbaweety at Bahariya Oasis -Egypt. This region had consisted of nearly 1200 home, was taken the house is located in the 3rd arrangement during the selection the house should contain about parent have child in age between 10 to 19 (Adolescent) and the child should have a smart phone and use internet.

Type Sample: Purposive sample was used in this study.

Sample Size:

The calculated sample size was 375 parents. Due to the design effects (1.25), expected non- participating rate (10%). The final sample size was 375 parents provide a simplified formula to calculate sample size)

$$N = \frac{N}{1+N(e)2}$$

Where:

N=total population

n=sample size

e= level of precision =0.05

$$n = \frac{6000}{1+6000(0.0025)} = 375$$

Total number =375 parent

Tools for data collection:

Data was collected using the following one tool:

Tool: A structured interviewing sheet: was used in the study, it's developed by investigator after reviewing the national and international related literature and contains four parts:

Part (I): Demographic characteristics of parents and their adolescent children it included 2 items:

   A- Sociodemographic characteristics of parents consisted of 11 items such as parent age, sex, marital status, educational level, occupation, …. etc.

   B- Sociodemographic characteristics of adolescent children consisted of 5 items such as child age, adolescent child's place of residence, gender…...etc.

Part (II): Prevalence rate of mobile phone use consisted of 11 items such as are you good at using a mobile phone, are you good at using internet applications, computer and Internet usage skills, since when does a teenage child have a mobile phone…......etc.

Part (III): Parents' knowledge about mobile protective methods and risks of mobile application consisted of 4 items as:

   A- Parents' knowledge about ways to protect themselves from mobile phones consisted of 7 close end questions as: the concept of mobile phone protection methods, ways to protect against the risks of mobile phone applications, the importance of methods of protection for mobile phone applications,etc.

B- **Parents' knowledge about mobile phone applications and games consisted of 16 close end questions as:** knowledge about the Facebook application, TikTok application, Instagram application, twitter application, snapshot application, Google map application, …...etc.

C- **Parents' knowledge about the dangers of mobile phone applications and ways to prevent them to the child consisted of 7 close end questions as:** health risks of a mobile phone to a child, social risks of the mobile phone to the child, risks of a mobile phone to a child's eyes……. etc.

D- **The dangers of mobile phone application addiction consisted of 11 close end questions as:** the child spends more time on the phone than I want due to using text messaging applications, child goes to bed late and sleeps for a short time due to the use of mobile phone applications, ……. etc.

Scoring system:

Each statement was assigned score according to parent's response were: complete correct was scored 2 grades. Incomplete correct was scored 1 grade and incorrect or don't know was scored 0. Total score were 82 grades from 41 questions. The total scores each item summed up and then converted into percent score **as the following:**

- Good knowledge ($\geq 75\%$) = ≥ 62 grades, was considered high score.
- Average knowledge ($50 - < 75\%$) = $41 - < 62$ grades, was considered moderate score.
- Poor knowledge ($< 50 \%$) = < 41 grades, was considered poor.

Part (III): Parents' reported practice regarding protective methods consisted of 4 items as:

A- **Reported practice of parents about interaction limitations included 5 closed end questions as:** control the pictures that the child posts on the internet, control what information a child can share online, …. etc.

B- **Reported practice of parents about place restrictions on internet sites that the child can access included 3 closed end questions as:** set specific rules and follow their application for using the internet, set a time to connect to the Internet during the day for the child, ……etc.

C- **Reported practice of parents about supervision and shared use included 3 closed end questions as:** help a child when they need to search for something on the Internet, watch the child when he uses the internet, …. etc.

D- **Reported practice of parents about active tracking included 16 closed end questions as:** log in to your child's social media profile in order to read personal messages, review the child's private file on social media sites in order to find out what type of information the child shares, contacts added by the child to his profile verified, ...etc.

Scoring system:

Each statement was assigned score according to parents' response were "Done", "Sometimes", "Not Done", and were scored 2, 1, and 0. (done 2, sometimes 1 not done 0), respectively. Total score were 54 grades for 27 items. The scores of items summed up and then converted into percentage score **as the following:**

- (> 60) was considered satisfactory = ≥ 32 grades.
- (≤ 60) was considered unsatisfactory = ≥ 32 grades.

Tool validity and Reliability:

Content validity:

Validity was ascertained by a panel of experts equal (5) in branch of community health nursing, who was review the tool for the format, layout, consistency, accuracy, and relevance.

Tool Reliability:

Reliability was tested statistically using the appropriate statistical tests to assure that the tools are reliable before data collection.

I. Operational Item:

It was included preparatory phase, content validity and reliability, pilot study and field work.

A. Preparatory phase:

Prepare the study tool based on related literature review and develop the study tool and test its content validity and reliability.

Pilot study:

A pilot study conducted on 10% of the parents equal 38 parents under study to assess the feasibility, practicability, clarity and objectivity of the tools. Based on the results, no modification was done. Parents in the pilot study were included in the main study sample because no modifications were done.

Field work:

- An official letter issued from the dean of Faculty of Nursing Helwan University, and parents, Bahariya Oasis through home visit in Elbaweety at Bahariya Oasis -Egypt including the aim of the study to obtain permission after establishing a trustful relationship, each subject interviewed individually by the investigator to explain the study purpose.
- Data collected within 6 months from first of July until end of December 2023 two days /week (Tuesday-Wednesday), from 9am - 2pm, till the needed sample completed, interview of parents, informed consent obtained from parents after the investigator introduce himself for each parent, then explain the purpose of the study to assess knowledge, and reported practice of parents about protective method regarding the risks of mobile applications used by their adolescent children. Study collected through structure face to face interview and the entire tool filled by the investigator.
- The investigator utilizes one tool, was need 20 -30 minutes and meeting the parents two days per week (Tuesday- Wednesday).
- The investigator taken 15 parents every two days each week consists about 60 parents per month, total number of informal caregivers = 375 parents.

Ethical Considerations:

The research approval was obtained from the one Scientific Research Ethical Committee in the faculty of nursing, Helwan University before starting the study, The investigator was clarified the objective and aim of the study to nurses and patients included in the study, The investigator assured anonymity and confidentiality of subjects' data. Parents informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time.

III- Administrative Item:

An official Permission was obtained from Dean of Faculty of Nursing Helwan University and official Permission from parents, In Bahariya Oasis in which the study was conducted. This letter included a permission to collect the necessary data and explain the purpose and nature of the study.

IV- Statistical Item

The collected data from the studied sample was revised, coded and entered using personal computer (PC). Computerized data entry and statistically analyzed using SPSS program (Statistical Package for Social Science) version 24. Data were presented using descriptive statistics in the form of frequencies and relative percentages. Chi square test $(X)2$ was used to calculate difference between qualitative variables through this equation:

Degrees of Significance of the results were:

- Non-Significant (NS) if $p > 0.05$.
- Significant (S) if $p < 0.05$.
- High Significant (HS) if $p < 0.01$.

Result:

Table (1): Number and Percentage Distribution of the Studied Parents according to Socio-demographic Characteristics (n=375).

Item	No.	%
Parent Age		
(40-<45) years old	98	26.13
(45-<50) years old	132	35.20
(50-<55) years old	90	24.00
<55	55	14.67
Mean ± SD	48.4 ± 3.7 years	
Sex		
Male	285	76.00
Female	90	24.00
Marital Status		
Married	330	88.00
Divorced	30	8.00
Widower	15	4.00
Educational Level		
Reads and writes	70	18.67
Basic education	40	10.67
Secondary education	110	29.33
University education or more	155	41.33
Occupation		
Working	340	90.67
Not working	35	9.33
Family Income		
Sufficient	345	92.00
Insufficient	30	8.00
Place of Residence		
Rural	61	16.27
Urban	314	83.73
Number of family members		
≤4 members	90	24.00
≥ 5 members	118	31.47
≥6 people	167	44.53
Mean ± SD	5.4 ± 4.1	
Home crowdedness (no. of rooms/ no. of members)		
From 2 to 3	75	20.0
From 4 to 5	241	64.27
More than 5	59	15.73
Family type:		
Central	199	53.07
Extended	176	46.93

Table (1): Shows that, the mean age of studied parents was 48.4 ± 3.7 years. Also, 76.00 % of the studied parents were males and 88.00 % of the studied parents was married. Moreover, 90.67 % of the studied parent's

occupation was work. Additionally, 92.00 % of the studied parent's monthly income was sufficient, and 83.73 % of the studied parent's place of residence was urban area.

Table (2): Frequency Distribution of Adolescent Child's Socio-demographic Characteristics (n=375).

Item	No.	%
Child Age		
10- <13 years	**98**	**26.13**
13- <16 years	**204**	**54.4**
16 years: 19 years	**73**	**19.47**
Mean ± SD	**15.54 ± 4.7 years**	
Adolescent Child's Place of Residence		
With parents all the time	**345**	**92.0**
With parents for some time	**30**	**8.0**
Gender		
Male	**259**	**69.07**
Female	**116**	**30.93**
The Arrangement of the Teenage Child among his Siblings		
First	**89**	**23.73**
Second	**76**	**20.3**
Third	**178**	**47.5**
The fourth or more	**32**	**8.53**
Adolescent Child Education Stage		
Uneducated	**10**	**2.67**
Primary level	**35**	**9.33**
Preparatory level	**14**	**3.73**
Secondary level	**316**	**84.27**

Table (2): Shows that, the mean age of child was 15.54 ± 4.7 years, 69.07 % of the child's were male, 47.5 % the arrangement of the teenage child among his siblings was third, and 84.27 % adolescent child education stage was secondary level.

Part (II): Prevalence rate of mobile phone use.

Table (3): Number and Percentage Distribution of Child's Prevalence Rate of Mobile Phone Use (n=375).

Item	No.	%
Parents using a mobile phone for a good user		
Yes	**312**	**83.2**
No	**63**	**16.8**
Are you good at using internet applications?		
Yes	**286**	**76.27**
No	**89**	**23.73**
Computer and Internet usage skills for parents		
Does not know	**26**	**6.93**
Average	**88**	**23.47**
Good	**116**	**30.93**
Excellent	**145**	**38.67**

Since when does a teenage child have a mobile phone?		
From 1:3 years	65	17.33
From 4:6 years	223	59.47
More than 6 years	87	23.20
Is your son/daughter good at using mobile phone applications?		
Yes	319	85.07
No	56	14.93
The number of weekly hours that a teenage child spends on mobile phone applications:		
1:5	24	6.40
10:6	35	9.33
15:11	39	10.40
More than 16	277	73.87
Do you directly supervise the use of smart phones and social media to maintain your child's safety?		
Yes	142	37.87
Sometimes	146	38.93
No	87	23.20
Does your child use game on the mobile phone?		
Yes	254	67.73
Sometimes	76	20.27
No	45	12.00
If yes, what game does he use? (254)		
PUBG	209	82.28
Blue Whale	27	10.63
Maryam's Game	18	7.09
Does your child use mobile phone applications?		
Yes	315	84.00
Sometimes	60	16.00
No	0	0.00
If yes, what application does he use? (315)		
Facebook	280	88.89
Telegram	5	1.59
Tik Tok	30	0.95
Are you a friend of the child regarding the applications used?		
Yes	333	88.80
Sometimes	32	8.53
No	10	2.67
Do you know the content that your child shares with his friends?		
Yes	150	40.0
Sometimes	178	47.47
No	47	12.53

Table (3): Demonstrates that, 83.2 % of the studied parents good at using a mobile phone. Also, 76.27 % from them good at using internet applications. 85.07 % of the studied parents his son/daughter good at using mobile phone applications, and 88.80 % of the them had a friend of the child regarding the applications used.
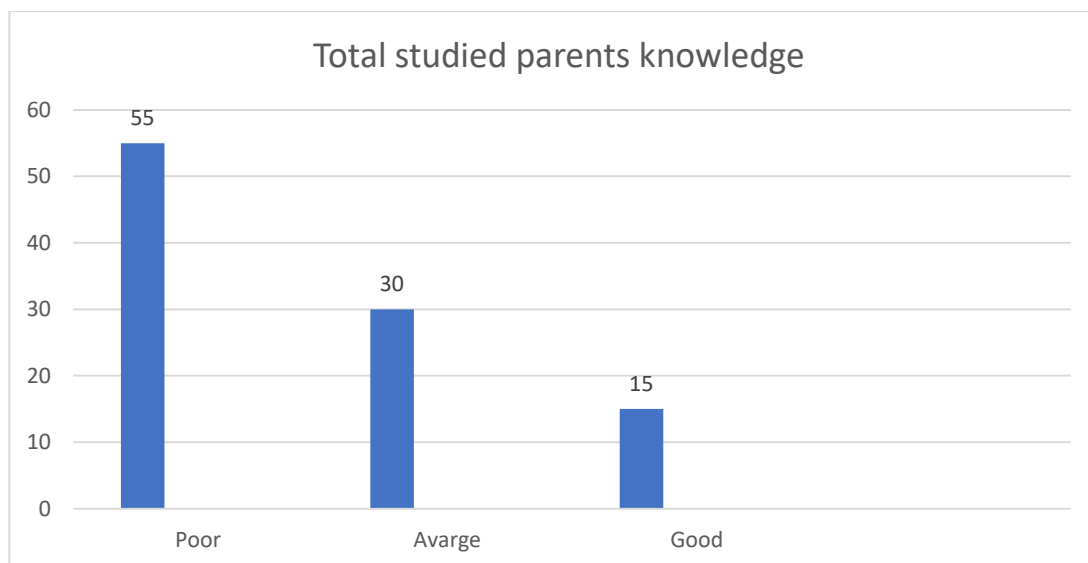
Figure (1): Percentage Distribution of the Studied Parent's Knowledge Regarding Mobile Protective Methods and Risks of Mobile Application (n=375).

Figure (1) Shows that, 55 % of the studied parents had poor knowledge about mobile protective methods and risks of mobile application. Also, 30 % of the studied parents had average knowledge about mobile protective methods and risks of mobile application. While, 15 % of the studied parents had good knowledge about mobile protective methods and risks of mobile application.

Figure (2): Percentage Distribution of the Studied Parent's Total Reported Practice Regarding Protective Methods Used (n=375).

Figure (2): Shows that, 40% of the studied parents had a satisfactory level in total parents' reported practice. While 60% of them had unsatisfactory total parents' reported practice.

Table (4): Relation between Studied Parent's Sociodemographic Characteristics and their Total Knowledge (n=375).

Socio- demographic characteristics	Poor (n=206)		Average (n=113)		Good (n=56)		X^2	P – value
	No.	%	No.	%	No.	%		
Parents Age / year								
(40-<45) years old	60	29.1	25	22.1	13	23.2	1·.391	.005
(45-<50) years old	80	38.8	40	35.4	12	21.4		
(50-<55) years old	40	19.4	30	26.5	20	35.7		
<55	26	12.6	18	15.9	11	19.6		
Gender								
Male	160	77.7	90	79.6	35	62.5	17.002	.001**
Female	46	22.3	23	20.4	21	37.5		
Marital Status								
Married	185	89.8	90	79.6	55	98.2	16.245	.000**
Divorced	15	7.2	15	13.3	0	0.0		
Widower	6	2.9	8	7.1	1	1.8		
Educational level								
Reads and writes	40	19.4	10	8.8	10	17.9		
Basic education	30	14.6	10	8.8	0	0.00		
Secondary education	70	34.0	30	26.5	10	17.9		
University education or more	66	32.0	58	51.3	31	55.3		
Occupation								
Working	180	87.4	104	92.0	56	100.0	18.012	.000**
Not working	26	12.6	9	8.0	0	0.00		
Family income								
Sufficient	190	87.4	100	88.5	55	98.2	18.247	.000**
Insufficient	16	7.8	13	11.5	1	1.8		
Place of residence								
Rural	170	82.5	100	88.5	44	78.6	15.321	.000**
Urban	36	17.5	13	11.5	12	21.4		
Number of family members								
≤4 members	68	33.0	15	13.3	7	12.5	17.661	.000**
≥ 5 members	70	34.0	45	39.8	3	5.3		
≥6 members	68	33.0	53	46.9	46	82.1		
Number of rooms in the house								
One room	20	9.7	5	4.4	5	8.9	20.239	.000**
Two rooms	15	7.3	7	6.2	0	0.00		
Three rooms	110	53.3	60	53.0	51	91.1		
More than three rooms	61	29.6	41	36.3	0	0.00		
Home crowdedness (no. of rooms/ no. of members)								
From 2 to 3	40	19.4	25	22.1	10	17.9	19.145	.000**
From 4 to 5	120	58.3	88	77.9	33	58.9		
More than 5	46	22.3	0	0.00	13	23.2		
Family type								
Central	90	43.7	90	79.7	19	33.9	24.254	.000**
Extended	116	56.3	23	20.3	37	66.1		

Table (4): Shows that, there was highly statistically significant relation between studied parent's age, gender, place of resident, parent's occupation, and their total knowledge, where (P = < .0001).

Discussion:

Parent protective methods and the awareness regarding the use of mobile applications can help ensure that children are safe online and are not exposed to inappropriate content. There are several parental control apps available that can help monitor and restrict child's online activities, limit screen time, and block inappropriate content. These apps can also help to track child's location and monitor their social media accounts. Parents crucial to teach child about online safety and responsible digital citizenship. Talk to children about the dangers of sharing personal information online, the risks of cyberbullying, and the importance of reporting any suspicious or harmful activity online *(Yip et al., 2023)*.

Regarding to socio-demographic characteristics of the studied parents. The present study findings related that mean age of parents and their adolescent children were 48.4 ± 3.7 years, and 15.54 ± 4.7 years, respectively. This result is similar to a study conducted by **Wheeler et al., (2023)** who conducted a study in South Thames in London about "US parents' intentions to use anti-bullying apps: Insights from a comprehensive model". They found that, the mean age of parents and their adolescent children were 49.7 ± 4.4 years, and 17.50 ± 3.3 years, respectively.

Concerning the level of education of studied parent, the current study result revealed that, less than half of the studied parent had university education and more, and majority of adolescent children had secondary level. This result in the same line with **Bonchak & Abel, (2022)** who carried out a study conducted in Nigeria about " Development of Mobile Application for Parental Guidance and Security ", they found that 46.3 % of studied sample had university education and more and 88.5 % of adolescent children had secondary education. From the investigator point of view, having a university education can open up better career opportunities and increase earning potential. Many parents recognize the benefits of higher education in terms of job security and advancement, motivating them to pursue a university degree.

Regarding the studied parent's occupation, the current study revealed that, the most of studied parent were working. This finding was in accordance with **Chua & Shorey, (2022)** who conducted a study in Canada about " Effectiveness of mobile application-based perinatal interventions in improving parenting outcomes" they found that, the 93.6 % of studied samples were working. From the investigator point of view, the high standard of living and prices leads to the need for work to provide the family's requirements.

Concerning the place of residence of studied parent, the current study result revealed that, majority of studied parent was live in urban area, while most of adolescent children live with parents all the time. This result in the same line with **Akter et al., (2022)** who carried out a study conducted in Pakistan about " From Parental Control to Joint Family Oversight: Can Parents and Teens Manage Mobile Online Safety and Privacy as Equals?", they found that 82.5 % of studied sample had live in urban area while 91.2 % of adolescent children live with parents all the time. From the investigator point of view, urban areas typically offer a wide range of amenities and services as healthcare facilities, educational institutions, shopping centers, entertainment venues, and cultural attractions. Living with parents provides a stable and supportive environment that can positively impact the mental health of both parents and children. Parents who have resources and support are better equipped to handle the challenges of raising an adolescent.

Regarding the studied parent and their adolescent children's gender, the present study indicated that more than two third of studied parent and adolescent children were male. These results agree with **Young et al., (2024)** who conducted a study in Saudia Arabia, studied about " Barriers to mediation among US parents of adolescents: A mixed-methods study of why parents do not monitor or restrict digital media use ", they found that, 72.6 % of the studied sample were male and 66.1 % of adolescent children were male. From the investigator point of view, societal norms and gender expectations can influence behavior and preferences. In some cultures, there may be expectations or pressures for males to engage in activities that align with technology, gadgets, or gaming, which could lead to higher usage of mobile applications.

Concerning the marital status of studied parent, the current study result revealed that, majority of studied parents were married. This result in the same line with **Stoev & Sarmah, (2023)** who carried out a study conducted in Karachi about " Online Protection for Children Using a Developed Parental Monitoring Tool", they found that 83.5 % of studied sample had married. From the investigator point of view, many people seek companionship and emotional support as they age. Marriage can provide a stable and enduring relationship that fulfills these needs.

Regarding the family income of studied parent, the present study indicated that more than half of studied parents were live in central family. These results agree with **Nielassoff et al., (2023)** who conducted a study in Indonesia, studied about " Protective factors of suicidal behaviors in children and adolescents/young adults", they found that, 52.3 % of the studied sample live in central family. From the investigator point of view, living in a central family allows for the cultivation of intimate and close relationships within the immediate family unit. It enables parents to focus on building connections and strengthening the parent-child and spousal relationships, which can foster a sense of closeness and emotional support.

Concerning the using a mobile phone that majority of adolescent children were good at using a mobile phone. This result in the same line with **Miklowitz et al., (2024)** who carried out a study conducted in Madrid about " Family Conflict, Perceived Criticism, and Aggression in Symptomatic Offspring of Parents with Mood Disorders ", they found that, 84.1 % of studied sample had good at using a mobile phone. From the investigator point of view, early exposure to technology helps develop their skills and knowledge. By growing up with a cell phone, children become familiar with modern tech at a young age, which can be advantageous for their future studies and work opportunities.

Regarding to have a mobile phone that more than half of adolescent children from 4:6 years have a mobile phone. This result in the same line with **Schlebbe, (2023)** who carried out a study conducted in Iran about " Uses and gratifications of a tablet computer for children", they found that, 53.2 % of studied sample had from 4:6 years have a mobile phone. From the investigator point of view, cell phones provide a means for children to easily connect with others. Communication through mobile phones helps children socialize, build friendships, and even plan group activities or school work.

Concerning spends on mobile phone applications that more two third of adolescent children were spend more than 16 weekly hours. This result in the same line with **Buerkie, (2023)** who carried out a study conducted in Accra Region, Ghana about " Assessing Parental Awareness of the Health Impacts of Excessive Smartphone/Tablet usage in Children in the Greater Accra Region, Ghana", he found that, 74.9 % of studied sample had spent more than 16 weekly hours that a teenage child spends on mobile phone applications. From the investigator point of view, the allure of social media and gaming platforms can also contribute to extended app usage among children. Social media platforms provide a space for children to connect with friends, share content, and stay updated on the latest trends. Gaming apps, on the other hand, offer immersive experiences and can be highly engaging, leading children to spend more time playing games on their mobile devices.

Regarding use mobile phone applications as Facebook that majority of adolescent children use mobile phone applications as Facebook. This result in the same line with **Alashwali & Alashwali, (2022)** who carried out a study conducted in Saudia Arabia about " Saudi parents' privacy concerns about their children's smart device applications ", they found that, 89.2 % of studied sample had use mobile phone applications as Facebook. From the investigator point of view, social media platforms like Facebook provide a way for adolescents to connect and communicate with their peers. It allows them to share updates, photos, and videos, and engage in conversations, enabling them to maintain social connections and stay updated on their friends' activities. The need for social interaction and belonging during adolescence may drive their preference for such platforms.

The following paragraphs, answered research question number Q1: What is the level of parents' knowledge regarding risks of mobile application uses and protective methods used?

Regarding studied parents' total knowledge, the current study revealed that, more than half of them had poor knowledge, less than two third had average knowledge and more than tenth of them had good knowledge, this

result agrees with **Alamoudi et al., (2023)** who conducted a study in Dutch about "The feasibility of using smartphone sensors to track insomnia, depression, and anxiety in adults and young adults", they found that,16.5 % of the parents had good total knowledge. Also, 51.5 % had poor knowledge and 32.0 % of them had average knowledge. From the investigator point of view, most of parents did not have a significant interest or motivation to explore or learn about mobile applications. They might view smartphones primarily as communication tools rather than platforms for accessing various applications and services.

The following paragraphs, answered research question number Q2: What is the level of parents 'reported practice regarding protective methods used?

Regarding studied parents' total reported practice, the current study revealed that, more than one third of them had satisfactory level in total reported practice, while less than two third of them had unsatisfactory total reported practice, this result agrees with **Carrion et al., (2022)** who conducted a study in Dutch about "Reflections of parents of children", they found that,38.9 % of the parents had satisfactory level in total reported practice. Also, 61.1 % had unsatisfactory total reported practice. From the investigator point of view, most of parents did not have a significant interest or motivation to explore or learn about mobile applications. They might view smartphones primarily as communication tools rather than

Regarding to relation between studied parent's socio demographic characteristics and their total knowledge, the current study revealed a highly statistically significant between studied parents' age, educational levels occupation and their total knowledge scores. This result agrees with the study done by **Greenwell et al., (2023)** who conducted a study in British about "Smartphone mobile application delivering personalized, real-time sun protection advice: a randomized clinical trial.", they found that, a statistically significant relation between parents' age, level of education and occupation, and their total knowledge scores. From the investigator point of view, it's essential for parents to strike a balance between respecting privacy and ensuring their child's safety. Parents should establish guidelines and maintain open lines of communication about online interactions, potential risks, and responsible digital behavior.

Conclusion

Based on the results of the present study and research question the following conclusion includes:

More than half of the studied parents had poor total knowledge about risks of mobile application uses and protective methods used, and less than two third of them had unsatisfactory total practice regarding risks of mobile application uses and protective methods used. There a relation between parents' knowledge, and reported practices towards their adolescent children to reduce risks of mobile application uses and protective methods used. There is statistically significant relation between parents' sociodemographic data and their knowledge, and reported practices regarding risks of mobile application uses and protective methods used.

Recommendations

In the light of the result of this study, the following recommendations were suggested:

1. Provide health education program for parents about risks of mobile application uses and protective methods used.

2. Design booklets about risks of mobile application uses and protective methods used which include all information for adolescent children.

3. Design posters and put in home of risks of mobile application uses that would help parents to improve' knowledge, and practice of protective methods used regarding their adolescent children.

References:

1. **Akter, M., Godfrey, A. J., Kropczynski, J., Lipford, H. R., & Wisniewski, P. J. (2022).** From Parental Control to Joint Family Oversight: Can Parents and Teens Manage Mobile Online Safety and Privacy as Equals? Proceedings of the ACM on Human-Computer Interaction, 6(CSCW1), 1-28.
2. **Alamoudi, D., Breeze, E., Crawley, E., & Nabney, I. (2023).** The feasibility of using smartphone sensors to track insomnia, depression, and anxiety in adults and young adults: narrative review. JMIR mHealth and uHealth, 11, e44123.
3. **Alanzi, T. (2021).** A review of mobile applications available in the app and google play stores used during the COVID-19 outbreak. Journal of multidisciplinary healthcare, 45-57.
4. **Alashwali, E., & Alashwali, F. (2022).** Saudi parents' privacy concerns about their children's smart device applications. International Journal of Child-Computer Interaction, 33, 100486.

5. **Azevedo, L. B., Stephenson, J., Ells, L., Adu-Ntiamoah, S., DeSmet, A., Giles, E. L., ... & Hudson, M. (2022).** The effectiveness of e-health interventions for the treatment of overweight or obesity in children and adolescents: A systematic review and meta-analysis. Obesity Reviews, 23(2), e13373.
6. **Bonchak, T., & Abel, N. A. (2022).** Development of Mobile Application for Parental Guidance and Security.
7. **Buerkie, D. (2023).** Assessing Parental Awareness of the Health Impacts of Excessive Smartphone/Tablet usage in Children in the Greater Accra Region, Ghana (Doctoral dissertation, Ensign Global College).
8. **Carrion, P., Semaka, A., Batallones, R., Slomp, C., Morris, E., Inglis, A., ... & Austin, J. (2022).** Reflections of parents of children with 22q11. 2 deletion syndromes on the experience of receiving psychiatric genetic counseling: 'awareness to act'. Journal of Genetic Counseling, 31(1), 140-152.
9. **Chua, J. Y. X., & Shorey, S. (2022).** Effectiveness of mobile application-based perinatal interventions in improving parenting outcomes: A systematic review. Midwifery, 103457.
10. **Davies, B., Kenia, P., Nagakumar, P., & Gupta, A. (2021).** Paediatric and adolescent asthma: a narrative review of telemedicine and emerging technologies for the post-COVID-19 era. Clinical & Experimental Allergy, 51(3), 393-401.
11. **Eisenhut, K., Sauerborn, E., García-Moreno, C., & Wild, V. (2020).** Mobile applications addressing violence against women: a systematic review. BMJ global health, 5(4).
12. **El Fiky, R., Mansour, M., Fekry, M., ElHabiby, M., Elkholy, H., & Morsy, M. (2022).** Occurrence of problematic Internet use and its correlates among Egyptian adolescent students in international schools in Cairo. Middle East Current Psychiatry, 29(1), 1-10. w
13. **Greenwell, K., Sivyer, K., Howells, L., Steele, M., Ridd, M. J., Roberts, A., ... & Muller, I. (2023).** 'Smartphone mobile application delivering personalized, real-time sun protection advice: a randomized clinical trial. British Journal of Dermatology, 188(4), 506-513.
14. **Hassandoust, F., Akhlaghpour, S., & Johnston, A. C. (2021).** Adolescent childrens' privacy concerns and adoption of contact tracing mobile applications in a pandemic: A situational privacy calculus perspective. Journal of the American Medical Informatics Association, 28(3), 463-471.
15. **Kamel, A., Khayrat, F., & Abd Elmoneem, H. (2020).** Health Practices of Teenage Mothers Regarding Health Care of Their Infants. Egyptian Journal of Health Care, 11(1), 1290-1300.
16. **Miklowitz, D. J., Ichinose, M., Weintraub, M., Merranko, J. A., Singh, M. K., & Guidance, C. (2024).** Family Conflict, Perceived Criticism, and Aggression in Symptomatic Offspring of Parents with Mood Disorders: Results from a Clinical Trial of Family-Focused Therapy. JAACAP Open.
17. **Nielassoff, E., Le Floch, M., Avril, C., Gohier, B., Duverger, P., & Riquin, E. (2023).** Protective factors of suicidal behaviors in children and adolescents/young adults: A literature review. Archives de Pediatric.
18. **Rattanaburi, K., & Vongurai, R. (2021).** Factors influencing actual usage of mobile shopping applications: Generation Y in Thailand. The Journal of Asian Finance, Economics and Business, 8(1), 901-913.
19. **Reif, L. K., van Olmen, J., McNairy, M. L., Ahmed, S., Putta, N., Bermejo, R., ... & Abrams, E. J. (2022).** Models of lifelong care for children and adolescents with chronic conditions in low-income and middle-income countries: a scoping review. BMJ Global Health, 7(7).
20. **Sarkar, S., Chauhan, S., & Khare, A. (2020).** A meta-analysis of antecedents and consequences of trust in mobile commerce. International Journal of Information Management, 50, 286-301.
21. **Schlebbe, K. (2023).** Uses and gratifications of a tablet computer for children: an analysis of online customer reviews. Online Information Review, 47(4), 714-731.
22. **Stoev, M., & Sarmah, D. K. (2023, February).** Online Protection for Children Using a Developed Parental Monitoring Tool. In International Congress on Information and Communication Technology (pp. 205-215). Singapore: Springer Nature Singapore.
23. **Wheeler, B., Baumel, K., Hall, D. L., & Silva, Y. N. (2023).** US parents' intentions to use anti-bullying apps: Insights from a comprehensive model. Heliyon, 9(9).
24. **Yip, J., Wong, K., Oh, I., Sultan, F., Roldan, W., Lee, K. J., & Huh, J. (2023).** Co-design Tensions Between Parents, Children, and Researchers Regarding Mobile Health Technology Design Needs and Decisions: Case Study. JMIR Formative Research, 7(1), e41726.
25. **Young, R., Tully, M., Parris, L., Ramirez, M., Bolenbaugh, M., & Hernandez, A. (2024).** Barriers to mediation among US parents of adolescents: A mixed-methods study of why parents do not monitor or restrict digital media use. Computers in human behavior, 153, 108093