Mothers' awareness of The Misuse of Smartphone by Their Children under Five Years

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Abstract

Background: The phenomenon of smartphone misuse in children is not only related to the use of smartphone that are getting earlier but also the high duration of smartphone usage and exceeding recommended usage limits. The use of smartphone can make children dependent because it have a pleasant effect and make children avoid conflict. **Aim:** assess mother's awareness of misuse of smartphone by their children under five years. **Design:** A descriptive design was utilized to achieve the aim of this study. **Setting**: (Maternal and Child Health Center) in Bab Al Sharia, west of Cairo governorate, (Maternal and Child Health Center) Seventh District, in Nasr City, east of Cairo governorate, (Maternal and Child Health Center) Egyptian Gulf in the Dome Gardens, north of Cairo governorate (Maternal and Child Health Center) Ancient Egypt in the Sayeda Zeinab, south of Cairo governorate. **Sample:** Purposive sampling technique of 266 mothers was used according to equation. **Tools:** two tools were used, **first tool** A Structured interviewing questionnaire sheet It included three parts, **Part 1:** mother's and child Socio- demographic data, **Part 2**: Mother's knowledge related to the misuse of smartphone by their children under five years **Part 3**: Mother's reported practices related to avoiding Health problems of smartphone misuse**, second tool** Attitude Rating Scale" Likert Rating scale" adopted from *(Batterton, & Hale, 2017)* for assessing mothers attitude regarding to smartphone misuse by their children under Five years of age. **Results:** Findings of the present study showed that (60.2%) of the studied mothers had unsatisfactory level of knowledge, (57.8%) of the studied mothers had unhealthy level of reported practices, and (54.5%) of the studied mothers had negative level of attitude. **Conclusion:** there was no significant statistical relation between total level of knowledge and total level of practice among the studied mothers and there was no significant statistical relation between total level of knowledge and total level of attitude among the studied mothers. While there was a significant statistical relation between total level of attitude and total level of practice among the studied mothers. **Recommendations** Health education and training programs are recommended to increase mothers' awareness (knowledge, attitude and practice) about smartphone and negative effects of technological devices. Booklets with illustrated pictures about smartphone addiction and it's prevention among preschool children should be available at nursery schools. Formulate strategies to reduce indiscriminate smartphone use by mothers and help them use smartphones

Keywords: Smartphone, Awareness, Misuse.

Introduction:

Smart phone means an electronic device that combines a cell phone with a hand – held computer, typically offering internet access, data strong, and text and email capabilities. Smart phones are one of the most common technologies and devices accessed and used by a large number of people all over the world. They have become one of the main tools to get a quick access to information ***(Zhao et al., 2020).***

As smartphone dependence becomes more severe, children tend to use their smartphones more frequently and to use applications that involve solitary play for the purposes of entertainment and pleasure ***(Ometov et al., 2020).***

The early period of a child's life is considered to be the most important developmental stage throughout the lifespan. In

the first five years of life, experiences and relationships stimulate children's development, creating millions of connections in their brains. In fact, baby brain develops faster connections in the first five years than at any other time in their lives. This is the time when the foundations for learning, health, and behavior are laid throughout life ***(Richter et al., 2019).***

Awareness is generally defined as perceiving objective reality, taking action against reality, and being able to control emotions and thoughts **.** In the field of modern sociology and psychological arena, awareness is defined as the "individual's consciousness of external stimuli and their own feelings, experiences, and thoughts". The perception of external stimuli by an individual and their awareness of original memory and thinking are different forms of awareness ***(Issa et al., 2020).***

Mothers play a key role in ensuring their children's healthy life. The debate about how, where and by whom young children should be looked after is one which has occupied much social policy and media attention in recent years. Mothers undertake most of the care of young children. Internationally, out- of- home day- care provision ranges widely, from 2% of under threes in Britain to 48% in Denmark ***(Zayia et al., 2021).***

Mother's beliefs and awareness are important aspects of parenting and family microsystem, together with factors such as parent's history and education, socioeconomic status, and culture. Parents possess personal ideas about modern technologies: they can be considered a source of entertainment/relaxation or a learning tool; conversely, for other people, PC, tablet, and smartphone can be harmful to children's health (such as sleep problems, obesity, etc.; for social risks (such as contacts with unfamiliar or social isolation;, or because they interfere with parent-child activities and time spent together ***(Serra et al., 2021).***

Community health nurse had an important role in providing the recommendations for effective parental mediation on children's digital activities are unequivocal like avoid the use of digital devices before 18–24 months with the exception of *video chatting* in the presence of the parent; do not allow the child (18–24 months older) to use the devices alone and for more than 1 h a day; do not press for an early use, the child will spontaneously approach the media when ready; help the child apply what he/she learns from using the device to the real world; and know that in infancy, direct experiences, manipulation, and unstructured play are crucial for the child's brain and for social, cognitive, and linguistic development ***(Ramacciati et al., 2021).***

Significance of the study:

Smartphone usage affects the way in which children's smartphone addiction impacts their behaviors and emotional intelligence. Smartphone addiction proneness sub-factors interfere with daily life and compulsory control through voluntary isolation and personality distortion ***(Yoon et al., 2021).***

According to a Central Agency for Public Mobilisation and Statistics (CAPMAS) report released on Monday, to mark the internationally celebrated Children's Day, 46.9% of Egyptian children whose age under 5 years, use smart phones ***(Central Agency for Public Mobilisation and Statistics, 2022).***

In a 2020 survey by pew research center 60% of children were exposed to smartphones before age 5. In that group, 31% had been introduced to phones before age 2. The use of the internet and the adoption of mobile device like smartphones and tablets is widespread, and digital technology play a significant role in the everyday lives of American families, this is also true for children, who may begin interacting with digital devices at young ages ***(Coutinho et al., 2022).***

Aim of the study:

This Study aims to assess mother's awareness of misuse of smartphone by their children under five years through:

1. Assessing mother's knowledge about misuse of smartphone by their children under five years.
2. Assessing mother's reported practices related to avoiding health problems of misuse smartphone by their children under five years.
3. Assessing mother' attitude related to misuse of smartphone by their children under five years.

Research questions:-

1. What is the knowledge of mothers related to misuse Of Smartphone by Their children under five years?
2. What is the reported practice of mothers related to misuse Of Smartphone by Their children under five years?
3. Is there a relation between mothers' knowledge and their reported practices?
4. Is there a relation between mothers' knowledge and their attitude?
5. Is there a relation between mothers' attitude and their reported practices ?

Subject and Methods

Research Design:

Descriptive design was used to achieve the aim of this study.

Study Settings:

The study was conducted at the Maternal and Child Health Centers from the four district of Cairo governorate and Maternal and Child Health Centers was chosen randomly from each district including the following:-

(Maternal and Child Health Center) in Bab Al Sharia, west of Cairo governorate, (Maternal and Child Health Center) Seventh District, in Nasr City, east of Cairo governorate,(Maternal and Child Health Center) Egyptian Gulf in the Dome Gardens, north of Cairo governorate (Maternal and Child Health Center) Ancient Egypt in the Sayeda Zeinab, south of Cairo governorate.

Subject:

Sample type*:*

A purposive sample technique used to conduct the study.

Sample Size:

The sample included 266 mothers, from total mothers attended the previously mentioned setting (2200) mother at 2019-2020 and according to equation**.**

Data collection tools: The data of this study was collected through two tools:

The first tool: A Structured interviewing questionnaire sheet

It was designed by the researcher in the Arabic language after reviewing the related literature and consisted of 34 questions. It was utilized into three parts:

Part 1: **Socio- demographic data:** it included mothers' age, level of education, Monthly income, occupation, number of children .(question from 1-5),

Children data: it included child's age, Child's gender, Child order in family, The child go to nursery.(question from 6 to9).

And assessment of children use of smartphone:

It included The child have special phone, Duration of using smart phone, daily use of smart phone, Weekly use of smart phone, child complaint, visit physician due to complaint of using smart phones (Question from 11 to 16).

Part 2: Mother's knowledge related to the misuse of smartphone by their children under five years it included the definition of smartphone, child's benefits of using smartphone, number of safe hours for using smartphone by child, factors that determine number of hours for using smartphone by child, Safe distance between child's eye and smartphone, Child's physical harms related to misuse Of smart phones, Child's psychological harms related to misuse of smartphone, Child's social harms related to misuse of smart phones, Precautions that must be followed during using smartphone. (Question from 17 to 25). Scoring system: each question evaluated as correct =1 and incorrect = 0.

The total knowledge questions (9) representing (9 degree) the total were summed up and converted into a percent score and categorized as the following:- Unsatisfactory: <50 % =(<4.5 degree), satisfactory: >50% =(>4.5 degree). The question of sources of information was excluded from the scoring system.

Part 3: Mother's reported practices related to avoiding Health problems of smartphone misuse it included the Number of allowed hours for using smart phones by child, The most common allowed times for using smart phones by child, The main cause for allowing to use smart phones, Type of program that are allowed to the child to watch, The allowed position for the child to use smart phones, Mother's actions to limit use of smart phones, Activities that mothers encourage child to practice it to decrease time of using smart phones, child punishment due to misuse of smart phones. (question from 27 to 34).

❖ **Scoring system:** each statement was evaluated as 1 score for done and 0 scores for not done. The total reported practices questions (8) representing (8degree) the total were summed up and converted into a percent score and categorized as the following:- unhealthy practice: less than 60% = (<4.8 degree), healthy practice: 60% or more =(>4.8 degree).

The second tool: Attitude Rating Scale Likert Rating scale adopted from *(Batterton & Hale, 2017* and modified by the investigator to assess mothers attitude regarding to smartphone misuse by their children under Five years of age. The scale was converse 20 clear simple statements for assessing mother's attitude related to their children use of smartphone. Scoring system*:* each Mother has three possible responses for Disagree was scored by (= 1), To some extent was scored by (=2), Agree was scored (= 3). The total statement (20) representing (60 degree) the total were summed up and converted into a percent score and categorized as the following:- Negative attitude: less than60% = (<36 degree), Positive attitude: 60%or more = (>36 degree).

Validity:

The validity of the tools was done through seeking the opinions of a jury group consisting of three professors of community health nursing department who judged their clarity, comprehensiveness, accuracy, relevance and whether it elicited the type of information sought; thus the tools were the content-validated. The tools were modified and rephrased based on the jury's opinions. This phase took two weeks' duration.

Experts' judgment regarding general evaluation of content validity of the data collection tools (n=3

Tools characteristics	Agree	Agree with modifications		Disagree
	%	N	%	
Related to objectives	100.0	0	**0.0**	**.0**
Comprehensive	100.0	0	**0.0**	**.0**
Representative	100.0	0	**0.0**	**.0**
In logic sequence	66.6	1	**33.4**	**.0**
Appropriate	66.6	1	**33.4**	**.0**
Accurate	100.0	0	**0.0**	**.0**
Clear	100.0	0	**0.0**	**.0**

Reliability:

Chronbach's Alpha test which showed that the tool consisted of relatively homogeneous items as evidenced by the medium to high reliability of each tool.

Testing reliability of the tools through Alpha Cronbach reliability analysis**.**

Scale	No. of variables	Cronbach's Alpha	Internal consistency
Total knowledge	9	0.87	Good
Total practice	8	0.91	Excellent
Total attitude	20	0.86	Good

Ethical considerations:

Official permission was obtained from scientific research and Ethical Committee Faculty of Nursing at Ain Shams University and the director of the mentioned center to collect data for the study.The researcher met with mothers to explain the purpose of the study and to obtain their agreement to participate. They was reassured about the anonymity and confidentiality of the information collected, and that it would be used only for the purpose of scientific research. And It will not have any harmful effect on them and they withdraw from the study at any time. A written consents was obtained from each participant after explaning the purpose of the study.The questionnaire didn't include any immoral statements that touch mothers beliefs, dignity, culture, tradition and religious issues..

Pilot study:

The pilot study was carried out on a sample of mothers representing about 10% from the total sample (20cases) was included and chosen randomly from the previously mentioned setting and not excluded from the sample. There were no modifications found after the pilot study. The aim is to test the clarity and applicability feasibility of the tool and time needed for filling it.

Field work:

An official approval letter clarifying the purpose of the present study was issued from the Dean of the Faculty of Nursing at Ain Shams University to the General Director Bab Al Sharia Center for Maternal and Child Health, west of Cairo , and Scientific Research Ethical Committee in the Faculty of Nursing as an approval to conduct this study. The previously mentioned setting was attended by the researcher two days/week (Sunday and Tuesday) from 9.00 a.m. to 1 p.m. official working days for maternal and child health center from Saturday to Thursday six day\weak from 9.00am to2 pm.

The study started from beginning of April 2022, till the end of 2022 July The researcher met each mother individually and only after taking legal aspects of ethics in research and the necessary official permission was taken.

Firstly, the researcher interviewed of the subjects, explaining the aim of the research, and obtains a written consent from the mother involved in the study.

Secondly, the researcher assessed women's characteristics & knowledge, reported practice and health problems by utilizing questionnaire within 20-30 minutes, Likert scale to assess attitude within 15-20 minutes**.**

Administrative design:

An official permission was issued from the Dean Faculty of Nursing, Ain-Shams University to the General director Bab Al Sharia Center for Maternal and Child Health, west of Cairo. The purpose of the study and its procedures will be explained to them to get their consent and cooperation.

Statistical analysis:

Data was collected, coded and entered into a personal computer (P.C) IBM compatible 2.6 GHz. They were analyzed using Statistical Package for Social Science (SPSS), under windows version 18. The collected data were organized, revised, analyzed, tabulated using number and percent distribution. Proper statistical tests were used to determine whether there were statistically significant differences between the variables of the study. The statistical tests used in this study were: Mean and standard deviation for qualitative variables,

correlation coefficients (r) to find correlations between quantitative data, chi square test was used, P>0.05 there is a statistically no significant difference, P<0.05 there is a statistical significant difference.

Results:

Table (1): shows that, 67.7% of the studied mothers were in age group 25-35 years with mean age 33.39 ± 4.11 and 52.6% of them had secondary educational level. Also, 82.0% of them were housewives and 35.7% of them had three children. Additionally, 61.3% of them had insufficient monthly income.

Table (2): shows that, 36.4% of the studied mothers reported that the child who abused the smart phones were in age of 3 years and the child was boy in 63.6% of them. Also, 35.7% of the studied mothers reported that the child who abused the smart phones were the first child. Also, 74% of them reported that their child go to nursery

Table (3): shows that, 88.4% of the studied mothers reported that their child have no special phones and 45.5% of them reported that their child use smart phones since 2 years. Also, all of them reported that their child use smart phones daily and 35.7% use smart phones two hours daily.Sleep disturbance were the most common complaint reported by 35.3% of mothers. Additionally, 72.6% of them reported that their child hadn't been examined by physician due to complaint of using smart phones.

Table (4): shows that, 79.6% and 67.6% of the studied mothers had correct answer regarding definition of smart phone and child's benefits of using smart phones respectively. While, 72.6%, 63.6%, 77.1%, and 61.3%, of the studied mothers had incorrect answer regarding child's social harms related to misuse of smart phones, safe distance between child's eye and smart phones, number of safe hours for using smart phones by child and precaution that must be followed during using smart phones respectively.

Figure (1): illustrates that, 60.2% of the studied mothers had unsatisfactory level of knowledge while 39.8% of them had satisfactory level of knowledge about misuse of smartphone by their children.

Figure (2): illustrates that, 60.2% of the studied mothers had their information from mass media and 23.3% from friends or family. While 16.5% of them from health team

Table (5): shows that, 62.7% and 55.2% of the studied mothers demonstrated done practice regarding the main cause for allowing using smart phones and activities that mothers encourage child to practice it to decrease time of using smart phones respectively.

While, 68.5%, 57.9%, and 72.2%, of the studied mothers demonstrated not done practice regarding the allowed position for the child to use smart phones.

Figure (3): illustrates that, 57.8% of the studied mothers had unhealthy level of reported practices while 42.2% of them had healthy level of practice about misuse of smartphone by their children.

Table (6): shows that, 54.9%, 60.2%, 67.7%, and 56.4% of the studied mothers reported agree regarding the following statement; use of smart phones affects the child's sleep pattern, the child use of smart phones during eating, the child may go to bed late and wake up frequently at night and use of smart phones effect on child's nutritional style respectively.

Table (6- continues) shows that, 67.7% and 56.4% of the studied mothers reported agree regarding the following statement; the child wants to be alone while using the smartphone and the child shows less interest in school and school activities respectively. Also, 52.7% of the studied mothers reported agree regarding both the child has become more aggressive as a result of frequent use of the smartphone and the child does not seem to feel remorse after misbehaving.

Figure (4): illustrates that, 54.5% of the studied mothers had negative level of attitude while 45.5% of them had positive level of attitude about misuse of smartphone by their children.

Table (7): shows that, there was no significant statistical relation between total level of knowledge and total level of practice among the studied mothers at P-value 0.156.

Table (8): shows that, there was no significant statistical relation between total level of knowledge and total level of attitude among the studied mothers at P-value 0.283.

Table (9): shows that, there was a significant statistical relation between total level of attitude and total level of practice among the studied mothers at P-value 0.030.

Table (1): Distribution of demographic characteristics of the studied mothers (n=266).

Demographic characteristics	Items	N	%
Age (in years)	25-35	180	67.7
	36-45	86	32.3
	Mean ± SD	33.39 ± 4.11	
Educational level	Don't read or write	6	2.3
	Elementary	30	11.3
	Secondary	140	52.6
	University	90	33.8
Occupation	working	48	18
	Housewife	218	82
Number of children	One	67	25.2
	Two	83	31.3
	Three	95	35.7
	≥ Four	21	7.8
Monthly income	Sufficient	103	38.7
	Insufficient	163	61.3

Table (2): Distribution of the studied mothers according to their children data (n=266).

Children data	Items	N	%
Child's age	3	97	36.4
(in years)	4	95	35.7
	<5	74	27.9
Child's gender	Boy	169	63.6
	Girl	97	36.4
	First	95	35.7
Child order in family	Second	67	25.2
	Third	61	22.9
	≥ fourth	43	16.2
The child go to nursery	Yes	197	74.0
	No	69	26.0
	If yes, since *n=197*		
	<1 year	71	36.1
	≥1 year	126	63.9

Table (3): Distribution of the studied mothers in relation to their children use of smart phones (n=266).

Variables	Items	N	%
The child have special phone	Yes	31	11.6
	No	235	88.4
Duration of using smart phone	1 year	36	13.6
	2 years	121	45.5
	3 years	72	27
	Don't know	37	13.9
Daily use of smart phone	Half hour	58	21.8
	One hour	74	27.9
	Two hours	95	35.7
	More than two hours	39	14.6
Weekly use of smart phone	Daily	266	100
Child complaint	Headache	19	7.1
	Blurred vision	47	17.6
	Hearing impairment	12	4.5
	Sleep disturbance	94	35.3
	Back /neck pain	24	9
	None	117	43.9
visit physician due to complaint of	Yes	73	27.4
using smart phones	No	193	72.6

Table (4): Distribution of the studied mothers according to their knowledge about misuse of smartphone by their children (n=266).

Items	Correct		Incorrect	
	N	%	N	%
Definition of smart phone	212	79.6	54	20.4
Child's benefits of using smart phones	180	67.6	86	32.4
Number of safe hours for using smart phones by child	73	27.4	193	72.6
Factors that determine number of hours for using smart phones by child	97	36.4	169	63.6
Safe distance between child's eye and smart phones	61	22.9	205	77.1
Child's physical harms related to misuse of smart phones	103	38.7	163	61.3
Child's psychological harms related to misuse of smart phones	96	36.1	170	63.9
Child's social harms related to misuse of smart phones	54	20.4	212	79.6
Precaution that must be followed during using smart phones 77	28.9	189	71.1	

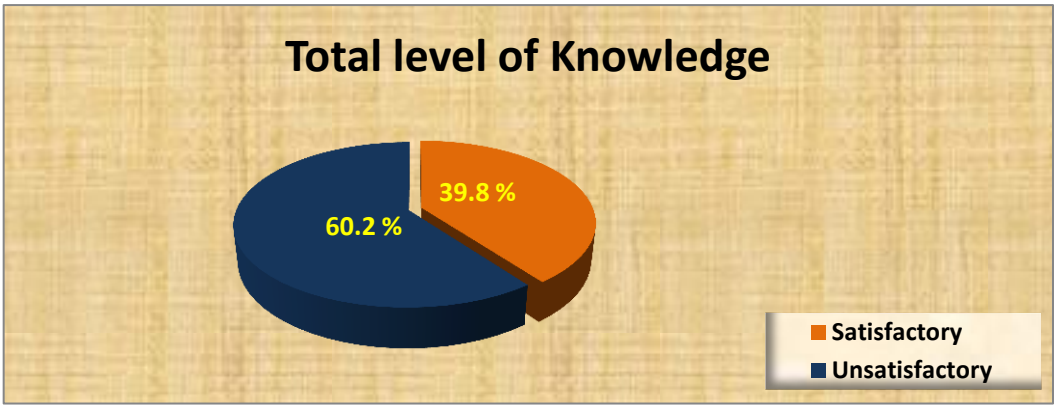

Figure (1): Distribution of the studied mothers according to their total level of knowledge about misuse of smartphone by their children (n=266).

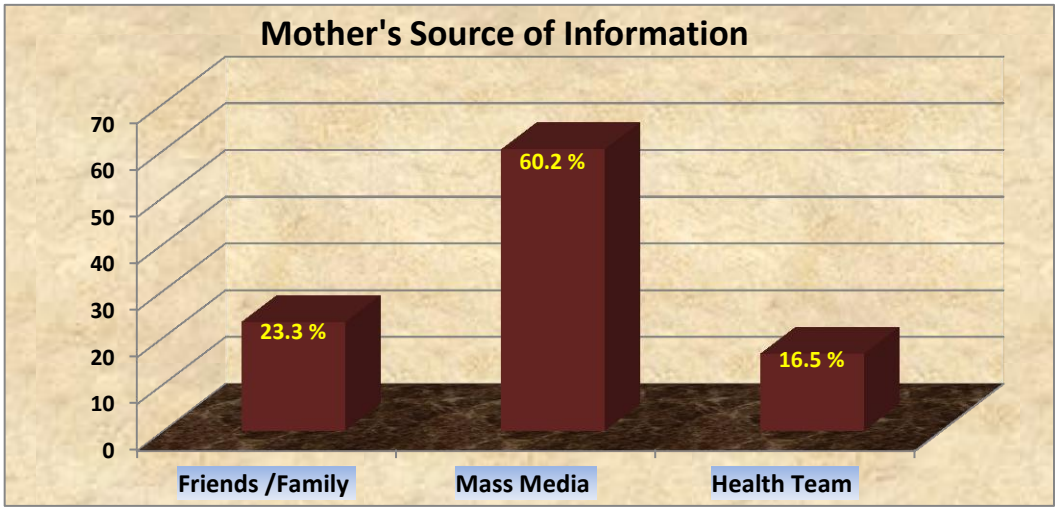

Figure (2): Distribution of the studied mothers according to their source of information about misuse of smartphone by their children (n=266).

Table (5): Distribution of the studied mothers according to their reported practice about misuse of smartphone by their children (n=266).

Items of practice	Done		Not done	
	N	%	N	%
Number of allowed hours for using smart phones by child	130	48.8	136	51.2
The most common allowed times for using smart phones by child	84	31.5	182	68.5
The main cause for allowing to use smart phones	167	62.7	99	37.3
Type of program that are allowed to the child to watch	112	42.1	154	57.9
The allowed position for the child to use smart phones	74	27.8	192	72.2
Mother's actions to limit use of smart phones	92	34.5	174	65.4
Activities that mothers encourage child to practice it to decrease time of using smart phones	147	55.2	119	44.8
child punishment due to misuse of smart phones	83	31.2	183	68.8

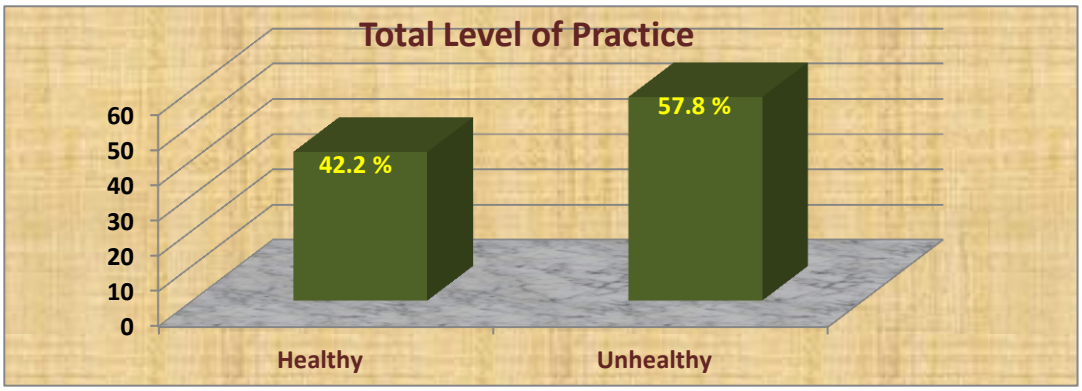

Figure (3): Distribution of the studied mothers according to their total level of reported practices about misuse of smartphone by their children (n=266).

Table (6): Distribution of the studied mothers according to their attitude about misuse of smartphone by their children (n=266).

Items of practice	Agree		Some extent		Disagree	
	N	%	N	%	N	%
Use of smart phones affect on child's nutritional style.	146	54.9	30	11.3	90	33.8
The child use of smart phones during eating.	160	60.2	56	21.0	50	18.8
Use of smart phones affects the child's sleep pattern.	180	67.7	40	15.0	46	17.3
The child use the smartphone immediately after waking up.	90	33.8	100	37.6	76	28.6
Use of smart phones affect the child's sleeping times.	120	45.1	100	37.6	46	17.3
The child may go to bed late and wake up frequently at night.	150	56.4	50	18.7	66	24.9
Use of smart phones affects the child's playing routine.	80	30.0	86	32.4	100	37.6
The child locks the room when the smartphone is within reach	110	41.4	80	30.0	76	28.6
The child prefers to stay at home rather than spend time with family and friends	70	26.4	90	33.8	106	39.8

Table (6) continue: Distribution of the studied mothers according to their attitude about misuse of smartphone by their children (n=266).

Items of practice	Agree		Some extent		Disagree	
	N	%	N	%	N	%
The child wants to be alone while using the smartphone	180	67.7	40	15.0	46	17.3
The child shows less interest in school and school activities.	150	56.4	80	30.0	36	13.6
The child has become more aggressive as a result of frequent use of the smartphone.	140	52.7	50	18.7	76	28.6
Too much use of the smartphone makes the child less focused and attentive.	100	37.6	76	28.6	90	33.8
The child frequently becomes irritable or irritable when the mobile phone is not available	90	33.8	76	28.6	100	37.6
Frequent use of the phone makes the child irritable	110	41.3	70	26.4	86	32.3
The child frequently quarrels with the parents for not giving the mobile phone	89	33.5	100	37.6	77	28.9
The child frequently gets into an argument with everyone about the use of the smartphone	95	35.7	70	26.4	101	37.9
The child does not seem to feel remors after misbehaving	140	52.7	80	30.0	46	17.3
Excessive use of the smartphone leads to health problems	130	48.8	80	30.0	56	21.2
The child suffers from neck pain while using the phone	90	33.8	80	30.0	96	36.2

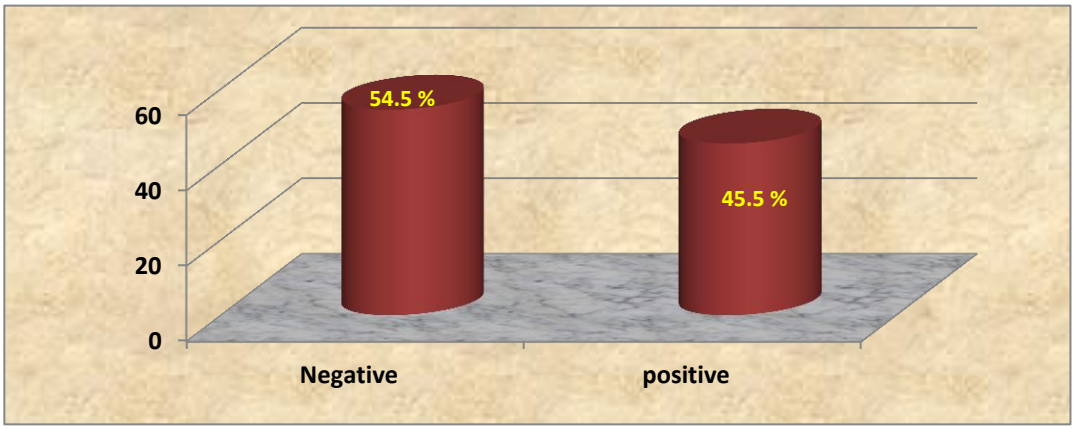

Figure (4): Distribution of the studied mothers according to their total level of attitude about misuse of smartphone by their children (n=266).

Table (7): Relation between total level of knowledge and total level of reported practice among the studied mothers.

Related to research question No (3)

Variables		Total level of Practice				X^2	P-value
		Healthy		Unhealthy			
		N	%	N	%		
Knowledge	Satisfactory	39	14.7	67	25.2	2.041	0.156 (NS)
	Unsatisfactory	73	27.4	87	57.9		

Table (8): relation between total level of knowledge and total level of attitude among the studied mothers.

Related to the research question No (4)

Variables		Total level of attitude				X^2	P-value
		Negative		Positive			
		N	%	N	%		
Knowledge	Satisfactory	55	20.7	51	19.2	0.490	0.283 (NS)
	Unsatisfactory	90	33.8	70	26.3		

Table (9): relation between total level of reported practice and total level of attitude among the studied mothers.

Related to the research question No (5)

Variables		Total level of attitude				X^2	P-value
		Negative		Positive			
		N	%	N	%		
Practice	Healthy	53	19.9	59	22.2	4.033	0.030* (S)
	Unhealthy	92	34.6	62	23.3		

Discussion:

Smartphone addiction has many negative impacts on children, which can make preschool children become less physical activity and increase the risk of obesity, increase vision problems, reduced sleep duration, low pro-social behavior, besides technology addiction is also an indicator of social isolation **(Rahmawati & Latifah, 2019).**

Part (I): Demographic characteristics of the studied mothers.

Regarding age of the studied mothers the present study result showed that, more than two thirds of the studied mothers were in age group 25-35 years with mean age 33.39 ± 4.11**(Table 1)**. The present study result contrasted with **Ali et al., (2020)** who studied 114 mothers in Jordan about " Examining the Associations between Smartphone Use and Mother–Infant Bonding and Family Functioning: A survey Design" and found that, more than half of the studied mothers were in age group 19–29 years.

As regard level of education of the studied mothers the present study result mentioned that, more than half of them had secondary educational level **(Table 1)**. The present study result in disagreement with **Çekiç, (2019)** in a study in Turkey, entitled" Children's Use of Technology and its Negative Impacts from Mother's Perspective" on 20 mothers and showed that, half of the studied mothers had University level of education.

As regard occupation of the studied mothers the present study result showed that, most of the studied mothers were housewives **(Table 1)**.. The present study result goes in the same line with **Ali et al., (2020)** revealed that, the highly percentage of the studied mothers were housewives.

As regard number of children the current study result showed that, more than one third of them had three children, and less than two thirds of them had insufficient monthly income **(Table 1)**. The present study result contrasted with **Ali et al., (2020)** mentioned that, more than one quarter of the studied mothers had one child, and a monthly family income between 366 and 700 Jordanian Dinar.

Concerning children data the present study result showed that, more than one third of the studied mothers reported that the child who abused the smart phones were in age of 3 years and less than two thirds of the studied children were boys. Also, more than one third of the studied mothers reported that the child who abused the smart phones were the first child. Also, less than three quarters of them reported that their child went to nursery **(Table 2)**

The present study result agree in relation to child order in family with **Park J& Park M, (2021)** who applied study in Korea about 'Smartphone Use Patterns and Problematic Smartphone Use among Preschool Children" on 1,378 study subject and found that, most of the studied mothers reported that, the child who abused the smart phones were the first child, while disagree in relation to gender, more than half of the studied children were female

Regarding studied mothers in relation to children use of smart phones the present study result showed that, most of the studied mothers reported that their child had no special phones and less than half of them reported that their child use smart phones since 2 years. Also, all of them reported that their child used smart phones daily and more than one third of them used smart phones two hours daily. Sleep disturbance were the most common complaint reported by more than one third of mothers. Additionally, less than three quarters of them reported that their child hadn't been examined by physician due to complaint of using smart phones **(Table 3)**

The present study result supported with **Genc, (2014)** who studied 85 Turkish parents of children between three and six years old in a study entitled "Parents' Perceptions about The Mobile Technology Use of Preschool Aged Children" and mentioned that highly percentage of the studied children used smartphone daily. While the present study result disagrees with **Mohamed & Ata, (2021)** who studied 300 mothers in Egypt about "Mothers' Awareness regarding smartphone Addiction for Preschool Children" and reported that, less than half of studied mothers specified that their children suffered from anxiety and tension when not using electronic devices for long periods and less than half of the studied mothers specified inability of their children to wake up early.

Part II: Mother's knowledge about smartphone misuse by their children under five years.

Regarding knowledge of the studied mothers about misuse of smartphone by their children the present study result described that**,** most of the studied mothers had correct answer regarding definition of smart phone and more

than two thirds of them had correct answer about child's benefits of using smart phones. While, most of the studied mothers had incorrect answer regarding child's social harms related to misuse of smart phones. More than three quarters of them had incorrect answer regarding safe distance between child's eye and smart phones**.** While less than three quarters of them had incorrect answer regarding number of safe hours for using smart phones by child also the same percentage of them had incorrect answer regarding precaution that must be followed during using smart phones **(Table 4).**

As regard **Buabbas et al., (2021)** who studied 120 parents in Kuwait about Parents' Attitudes toward School Students' Overuse of Smartphones and its Detrimental Health Impacts and found that, almost all of the parents were aware that the overuse of Smartphones devices could lead to addiction and other detrimental effects, including side effects related to physical and mental health problems, they also acknowledged that their children still used SPs heavily.

From the researcher point of view, this result reflect that parental awareness about the detrimental impacts was not enough to reduce SP overuse among children., proper parental education and action are needed, wherein they can learn and use a variety of strategies to reduce the Smartphones overuse, such as restrictions on technology use

As regard total level of knowledge of the studied mothers about misuse of smartphone by their children the current study result illustrates that, less than two thirds of the studied mothers had unsatisfactory level of knowledge while about two fifths of them had satisfactory level of knowledge about misuse of smartphone by their children **(Figure, 1).**

These findings agreed with **Caliskan et al., (2018**) they studied 92 mothers in Turkey about "Effects of Triple P on Digital Technological Device Use in Preschool Children at Nevsehir University in Turkey" and they low percentage of them had good total knowledge score about technology addiction for preschool children. While the present study result contrasted with **Mohamed & Ata, (2021)** who mentioned that, more than three quarters of the studied mothers had average total knowledge score about technology addiction for preschool children, while less than one fifth of them had good total knowledge score about technology addiction for preschool children.

From the researcher point of view, this might be due to decrease media campaigns about smartphone addiction among preschool children

Regarding source of information about misuse of smartphone by their children the present study result illustrated that, less than two thirds of the studied mothers had their information from mass media and one third of them had their information from friends or family. While less than one fifth of them had their information from health team **(Figure 2)**.

The present study result in disagreement with **Lindsay et al., (2018)** who study thirty-seven Brazilian mothers of preschool-age children and revealed that the mothers participating in this study did not initially actively seek out information about Physical Activity for their preschool-age children, but that they received unsolicited information about these behaviours from multiple sources including their child's paediatrician

From the researcher point of view, this result reflects effect of mass media as a source of information

Part III: Mother's reported practices related to avoiding health problems of smartphone misuse by their children under five years.

Regarding reported practice of the studied mothers about misuse of smartphone by their children the present study result describes that, less than two thirds of the studied mothers demonstrated did practice regarding the main cause for allowing using smart phones and more than half of them done practice regarding activities that mothers encourage child to practice it to decrease time of using smart phones. While, less than three quarters of the studied mothers demonstrated did not practice regarding the allowed position for the child to used smart phones, more than half of them didn't practice regarding type of program that were allowed to the child to watched and more

than two thirds of them did not practice regarding the most common allowed times for used smart phones by child (Table 5).

The present study result goes in the same line with Oflu et al., (2021) study 240 children aged 2 to 5 years participating in Ankara., entitled" Excessive screen time is associated with emotional lability in preschool children" found that, the studied mothers able to use smartphone and try to decrease of the screen time

Also supported with Arippin et al., (2021) studied 113 parents in Brunei entitled "Children's Screen Time At Home: A Study of Parents' Knowledge, Attitude and Practice" found highly percentage of the studied mothers tried to limit or not used screen-based devices whenever I am with my child(ren).

As regard Bentley et al., (2016) reported that, some mothers felt that developing computers and/or touchscreen skills were important for their child. This was mainly because they were aware that their child would be using these devices in school and wanted them to have a head start or feared that they would be behind if they did not have computer skills. Some mothers commented that computer use was an important component of modern life, and that children should be encouraged to understand and use it from an early age.

Also Bentley et al., (2016) mentioned that, mothers gave a range of reasons for why they allowed their child to screen-view. All the mothers said that screen-viewing was a good way for their child to rest, relax or have some quiet time. This screen-viewing mostly consisted of television viewing, although some mothers talked about giving their child a tablet or smartphone to play games or watch programmes on as a means of downtime. Screen-viewing was also encouraged by mothers when they felt their child getting too wound up or excited, to calm the child down and prevent disruptive behaviour. Again, television was the predominant device used. As mobile devices provides portable access to television programmes, these were also used for this reason.

From the researcher point of view this result reflects mothers' awareness about smartphone practice was not enough. Or this may be due to mothers are preoccupied from children and allow child used the phone as a tool of entertainment and to silence the child

These results may be due to decrease level of knowledge about smartphone, and this level of knowledge affect of mothers practice with their children.

Regarding total level of reported practices of the studied mothers about misuse of smartphone by their children the present study result illustrated that, more than half of the studied mothers had unhealthy level of reported practices while less than half of them had healthy level of practice about misuse of smartphone by their children (Figure 3).

The present study result in accordance with Ohmann et al., (2018), study in Austria about "Internet Gaming Disorder in Children and Adolescents: A systematic Review at Medical University of Vienna, in Austria" found highly percentage of the studied mothers had unsatisfactory total practices regarding prevention from technology addiction

From the researcher point of view this might be due to mothers level of knowledge related to smartphone and this might be due to lack of mothers' experience about how to prevent technology for children in same age.

Part IV: Mother's attitude related to smartphone misuse by their children under five years

Regarding attitude of the studied mothers about misuse of smartphone by their children the present study result showed that, more than two thirds of the studied mothers reported agree regarding use of smart phones affects the child's sleep pattern, less than two thirds of them reported agree regarding the child use of smart phones during eating, More than half of them reported agree regarding the child may go to bed late and wake up frequently at night. Also half of them reported agree regarding use of smart phones effect on child's nutritional style (Table 6)

The present study result in agreement with Diler & Başkale, (2022) studied 304

parents of children aged 6 to 36 months old in Türkiye entitled "The influence of sleep patterns and screen time on the sleep needs " and found that, sleep needs are associated with the sleep patterns and screen usage of the children and parents.

Also in accordance with Kaya, (2020) who studied 25 participants in Turkey entitled "Perceptions of Parents Having Children in Preschool Level Regarding Their Children's Screen Use" and found that, the studied mothers reported screen used effect on child's eating habits, and sleep disorder

From the researcher point of view, parents' attitudes towards smartphone technologies have an important role in the strategies they adopt towards their children's use of these devices. It is therefore crucial to understand how parents perceive the use of touch screen technologies for children's learning as their perceptions may affect the quality and the quantity of smart mobile devices and apps available to their children.

Regarding attitude of the studied mothers about misuse of smartphone by their children the present study result showed that, more than two thirds of the studied mothers reported agree regarding the child want to be alone while using the smartphone and more than half of them reported agree regarding the child shows less interest in school and school activities. Also, more than half of them reported agree regarding both the child has become more aggressive as a result of frequent use of the smartphone and the child does not seem to feel remorse after misbehaving (Table 6 - continues).

The current study result similar with Yoo et al.,(2017) studied 275 mothers in Korea entitled "The effect of smartphone usage habits of mothers on young children's aggression and emotional intelligence" and found that, children with high levels of smartphone addiction or dependence tend to show negative developmental tendencies, such as impaired self-expression and self-regulation skills and increased aggression.

Regarding total level of attitude of the studied mothers about misuse of smartphone by their children the present study result illustrated that, more than half of the studied mothers had negative level of attitude while less than half of them had positive level of attitude about misuse of smartphone by their children (Figure 4).

The present study result goes in the same line with Mohamed & Ata (2021) reported that, highly percentage of studied mothers had a negative total attitudes score regarding technology addiction. Also supported with Shin & Li (2017) revealed that highly percentage of the studied mothers had a negative total attitudes score regarding technology addiction

From the researcher point of view this result might be due to lack of mothers' control on their children's electronic devices use. And might be due to level of mothers knowledge affect of level of practice and reflect on level of attitude.

Part V: Statistical associations among study variables

As regard correlation between total level of knowledge and total level of reported practice among the studied mothers the current study result showed that, there was no significant statistical relation between total level of knowledge and total level of practice among the studied mothers at P-value 0.156 **(Table 10).** The present study result in disagreement with **Mohamed & Ata, (2021)** mentioned there was a positive correlation between total knowledge score total practices score and total attitudes score of the studied mothers

Concerning correlation between total level of knowledge and total level of attitude among the studied mothers the current study result showed that, there was no significant statistical relation between total level of knowledge and total level of attitude among the studied mothers at P-value 0.283.**(Table 11).** The current study result disagreement with **Arippin et al., (2021)** found that, there was significant association between parent's knowledge and attitude regarding screen time.

Concerning correlation between total level of reported practice and total level of attitude among the studied mothers the current study result showed that, there was a significant statistical relation between total level of attitude

and total level of practice among the studied mothers at P-value 0.030 **(Table 12)**

The present study result supported with **Lauricella et al.,(2015)** studied 2326 parents of children aged 0–8 years in U S about "Young children's screen time: the complex role of parent and child factors" and found that, practice of screen media is highly associated with parental attitudes.

Conclusion:

In the light of the current study findings, it can be concluded that, less than two thirds of the studied mothers had unsatisfactory level of knowledge about misuse of smartphone by their children. Also more than half of the studied mothers had unhealthy level of reported practices. Additionally there was no significant statistical relation between total level of knowledge and total level of practice among the studied mothers and there was no significant statistical relation between total level of knowledge and total level of attitude among the studied mothers. While there was a significant statistical relation between total level of attitude and total level of practice among the studied mothers.

Recommendations:

- Health education and training programs are recommended to increase mothers' awareness (knowledge, attitude and practice) about smartphone and negative effects of technological devices.
- Booklets with illustrated pictures about smartphone addiction and it's prevention among preschool children should be available at nursery schools.
- Formulate strategies to reduce indiscriminate smartphone use by mothers and help them use smartphones more efficiently

Further study

- Further study about smartphone addiction need to perform on large samples of children in order to highlight technology addiction among preschool children.
- Future study should consider developing strategies to reduce smartphone use among mothers and encourage the efficient use of smartphones.

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