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Outcome of Overuse Smartphones on Psychosocial Status in Early Aged Children (3-6years)

Ahmed Makki Sahib[1], Abdul Mahdi A. Hasan[2]

[1]PhD student Community Health Nursing, College of Nursing, University of Babylon, Iraq,
Email: ahmed.mohamed.nurh104@student.uobabylon.edu.iq
[2]Prof. Dr. University of Babylon, College of Nursing, Iraq, Psychiatric and Mental Nursing Branch.
Email: abdmahdi2003@Gmail.com

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ABSTRACT

Background: The smartphone is one of the most widely used products among adults and kids alike. Nowadays, not a single child is unaware of smartphones. Compared to adults, they can occasionally use all of its applications more skillfully. Despite the fact that children shouldn't use smartphones for extended periods of time as this could harm their health. furthermore, Physical, psychosocial, and cognitive development are crucial in early childhood and play a significant during the preschool years' role in shaping children's psychosocial, behavioral, and academic outcomes.

The effects of smartphones on preschoolers' psychological is a topic of growing concern in today's society. Investigators have been concerned about preschoolers' excessive use of electronics, including smartphones and gadgets. High frequency of media usage in early childhood is probably going to negatively impact to psychosocial development, including emotional and behavioral issues, physical activity, sleep, and obesity, according to a literature analysis by (Paulus *et al*., 2021).

Objectives: This study aimed to assess of overuse of smartphones on psychosocial status in early aged (3-6 years) children and examine relationship between overuse of smartphones on psychosocial status in early aged children.

Methodology: A descriptive correlation quantitative approach is used. starting from November 9th 2023 to January 12th 2025, with data collecting included selecting (132) child selected for those who visits and benefited of Maternal and Child Health Unit services (MCHs) in Primary Health Care Centers (PHHCs) of Al-Najaf City, Iraq. Participants were selected based on specific criteria, including the children age group was between (3 to 6) years who attained primary health center for both North and South sectors during the time of data collection for the current study, being able to read and write (parents). Participants who had excessive use of electronic devices more than half an hour. Children who use of touchscreen devices such as smartphones or tablet computers or mobile or T.V. Problematic Technology Use Scale for excessive use of smartphones for young children (PTUS-YC) is a validated tool to measure an excessive use of electronic devices levels. Items of the instrument were grammatically correct and easy for the reader to understand, every child parent should answer these questions with one of the choices, A 5-point Likert scale was constructed for measuring according the following: (Completely Disagree=1, Somewhat Disagree=2, Undecided=3, Somewhat Agree=4, completely Agree=5), (Konca, 2022), The scale does not require special permission for use, as it is a globally recognized and publicly accessible measurement tool. And Psychosocial status of the child (PSAS 3–6) includes these 31 items in PSAS 3–6 scale for the child were used to measure overuse of smartphones on psychosocial status in early aged children and psycho-social status. The researcher applies five Likert type options: 0 for "never," 1 for "rarely," 2 for "sometimes," 3 for "often," and 4 for "always." A minimum score of 0 and a maximum score of 124 points can be obtained from the questionnaire, depending on the score assigned to each item.

Results: The result of assessment of excessive use of electronic devices that showed mostly of preschool children square of sample (30.3%) have a high excessive use of smartphone devices. Overall Psychosocial status of the child show that less than three quadrants of preschool more than (71.2%) have a moderate psychosocial distress.

Conclusion: It was noteworthy that an important number of preschool children reported excessive use of electronic devices. Psychosocial Impact: The analysis indicated an obvious correlation between excessive usage of electronic devices and negative psychosocial impacts on preschool children. Some children reported problems such as expressively emotional, aggressive speech and social withdrawal behaviors. Near to half of percent of children that were analyzed were reported to have moderate problematic behavior.

Recommendations: Development of awareness programs and policies aimed at reducing the negative health effects of excessive electronic device use among children. Parents and guardians need to set specific rules for screen engagement for their children.

Keywords: *Smartphone, Psychosocial status, Preschool Children Aged (3-6) Years.*

1. INTRODUCTION

Preschool who uses technology excessively may become less socially adept and able to communicate with others, as well as become dependent on it. To make sure that their children's developmental abilities develop effectively and that they become active, bright, and interactive children, parents should limit their children's usage of devices (Rofi'ah, 2021).

The early years are an important time for physical, psychosocial, and cognitive development, with interventions during the preschool years play a significant part in shaping preschoolers psychosocial, behavioral, academic outcomes. Many teenagers use electronics on a daily basis. Computers, gaming consoles, tablets, and smart phones are a few instances of electronic devices. These electronics are utilized for pleasure, learning, and communicating with others (Tsang et al., 2023).

Turkish preschoolers' psychosocial well-being is negatively impacted by excessive smartphone usage, this exacerbates emotional symptoms, behavioral issues, and peer connection difficulties. Limiting screen usage in early infancy is crucial since excessive screen time has a detrimental influence on preschoolers' physical, social, emotional, linguistic, and cognitive development (Alrikabi *et al*., 2020). Preschool who used technology excessively may become less socially adept and able to communicate with others, as well as become dependent on it. To make sure that their children's developmental abilities develop effectively and that they become active, bright, and interactive children, parents should limit their children's usage of devices (Rofi'ah, 2021). Thus, it is essential to inform parents about the harmful effects that excessive use of electronic devices has on young children in preschool and to offer recommendations for reducing screen time and encouraging positive behavior (Abdel Razek Barakat *et al*., 2020). On the other hand, screen time has more detrimental side effects and increases the dangers to the cognitive development of Iraqi children aged three to five. Which support earlier research and address the likelihood of hyperactive symptoms in children who often use screens.

Objectives of the study:

1- To assess impact of excessive use of electronic devices in preschool children Aged (3-6) Years.

2- To examine relationship between excessive use of electronic devices and psycho-social status in preschool children.

2. METHODOLOGY

Study sample

The study was applied at Maternal and Child Health Unit services (MCHs) in Primary Health Care Centers of Al-Najaf City, with a purposive sample of (132) child the PHHCs are selected for those who visits and benefited of Maternal and Child Health Unit services (MCHs) in Primary Health Care Centers of Al-Najaf City. The participants selection criteria were as follows: The children age group was between (3 to 6) years who attained primary health center for both North and South sectors during the time of data collection for the current study. Being able to read and write (parents). Participants who had excessive use of electronic devices more than half an hour. Children who use of touchscreen devices such as smartphones or tablet computers or mobile or T.V. The exclusion criteria were as follows: The participant who refused to given consent in sharing of the present study. Individuals who participate in the study have no history of chronic disease and psychiatric or neurologic disorders. Children who have post-operative patients. The children who had history of any previous surgical procedure. Patients who met the inclusion criteria were informed about the purpose and procedure of the study and confidentiality was assured. Before collecting data, we obtained approval from the Ethics. The study was carried out from November 26th 2023 to March 24th 2025.

Research Design

A descriptive correlational study design will be adopted to explore influence of overuse for electronic devices and psycho-social status in preschool children.

A sample size of (132) child will be determined using appropriate statistical methods. Purposive sampling will be used to recruit participants, ensuring representation from diverse demographics within the target population

Data Collection Tools. Problematic Technology Use Scale for Young Children (PTUS-YC) is a validated tool to measure an excessive use of electronic devices levels and Psychosocial status scale (PSAS 3–6 years) includes these items 31 items for the child were used to measure overuse of smartphones on psychosocial status in early aged children and psycho-social status. The researcher applies five Likert type options: 0 for "never," 1 for "rarely," 2 for "sometimes," 3 for "often," and 4 for "always." A minimum score of 0 and a maximum score of 124 points can be obtained from the questionnaire, depending on the score assigned to each item.

Sociodemographic and Clinical Data Form: form will collect information such as age of child, sex, screen time per day, type of electronic screen, monthly income of family, birth order of children in the family, number of siblings, type of family.

Data Analysis

Quantitative data will be analyzed using SPSS. **Descriptive statistics** (mean, median, standard deviation) will summarize

sociodemographic. A p-value of <0.05 will be considered statistically significant. **Inferential Data Analysis Approach** included: I. Internal consistency by estimate Cronbach Alpha for the reliability of questionnaire.

II. Correlation Coefficient to estimate the relationship between excessive use of electronic devices, physical, and psycho-social status in preschool children.

III. Tests of Normality by using Shapiro-Wilk.

IV. Kruskal-Wallis H test and Mann-Whitny U test to test relationship between child demographics data and excessive use of electronic devices and, relationship between parental demographics data and excessive use of electronic devices in relation.

3. RESULTS

Table 1. Demographic characteristics of the study sample.

		Frequency	Percent
Age of child	3	25	18.9
	4	39	29.5
	5	68	51.6
	Total	132	100.0
Sex	Male	81	61.4
	Female	51	38.6
	Total	132	100.0
Screen time per day	hours		
	(< 1 hour)	28	21.2
	(1-2 hours)	43	32.6
	(2-3 hours)	30	22.7
	(3-4 hours)	20	15.2
	(>4 hours)	11	8.3
	(Total)	132	100.0
Monthly Income of family	Sufficient	62	47.0
	Sufficient to some extent	56	42.5
	Insufficient	14	10.6

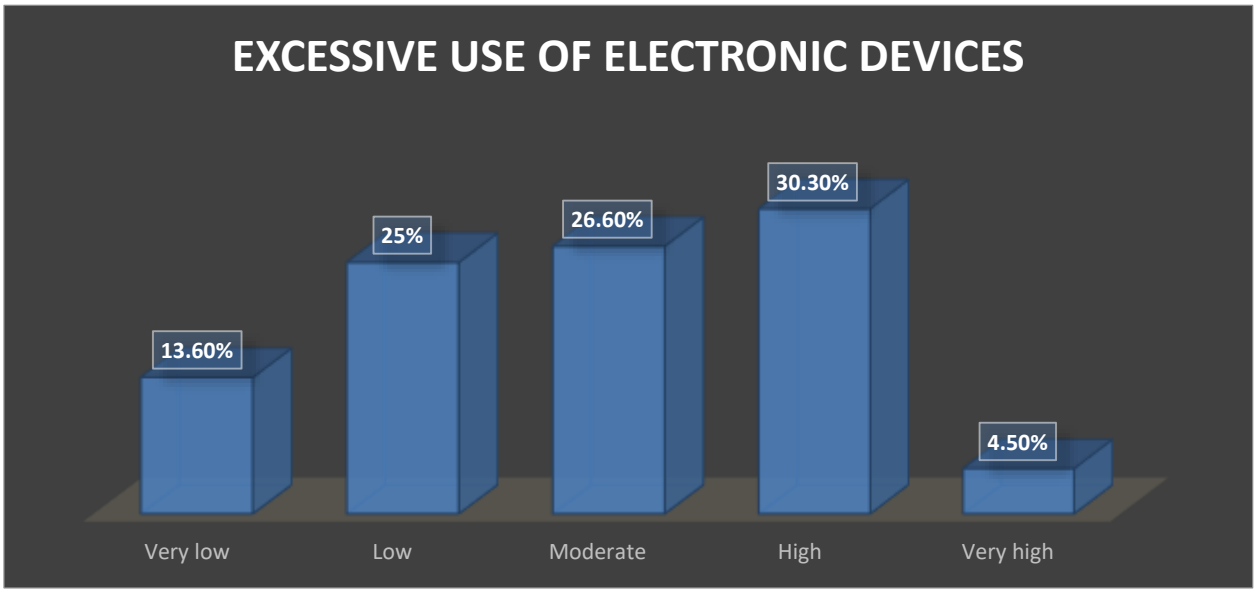
		Frequency	Percent
Total		132	100.0
Birth order of children in the family	First	41	31.1
	Second	48	36.4
	3+	43	32.6
	Total	132	100.0
Number of siblings	0	17	12.9
	1 Sibling	43	32.6
	2 Siblings	42	31.8
	3+ siblings	30	22.7
	Total	132	100.0
Type of family	Nuclear	84	63.6
	Extended	48	36.4
	Total	132	100.0

Table 2. Responses regarding excessive use of smartphones devices in preschoolers

	(Completely Disagree)	(Somewhat Disagree)	(Undecided)	(Somewhat Agree)	(Completely Agree)	(Total)	Mean	SD
My child spends an average of more than 1.5 hours a day with technological tools.	22	9	16	50	35	132	3.51	1.39
My child exceeds the time limit we have set for technology use.	29	16	14	46	27	132	3.20	1.46
My child often expresses a desire to spend time with technological tools.	21	23	17	51	20	132	3.20	1.33

There is a significant time increase between my child's early and present technology use.	24	25	21	39	23	132	3.09	1.38
My child starts to spend time with technological tools without fulfilling daily responsibilities.	35	25	15	44	13	132	2.81	1.39
My child experiences negative emotions when he/she is not spending time with technological tools.	36	16	14	51	15	132	2.95	1.43
My child experiences positive emotions when he/ she starts to spend time with technological tools.	16	23	21	57	15	132	3.24	1.23
My child relaxes by spending time with technological tools when he/she feels sad.	17	19	23	58	15	132	3.27	1.22
My child thinks about technological tools even when he/she is not spending time with them	35	16	27	45	9	132	2.83	1.33
My child prefers to spend time with technological tools instead of spending time with us or with his/her friends	35	24	15	46	12	132	2.82	1.39
My child spends time on technological tools by playing games or watching movies that are not suitable for his/her age.	54	14	17	36	11	132	2.52	1.46
My child's technology use makes him lonely.	51	19	18	34	10	132	2.49	1.42
My child prefers playing games on technological tools to playing games in real life.	36	11	14	51	20	132	3.06	1.48
My child does not want to go to school because he/she wants to spend his/her time with technological tools.	63	15	17	32	5	132	2.25	1.37
	Completely Disagree	Somewhat Disagree	Undecided	Somewhat Agree	Completely Agree	Total	Mean	SD
My child spends time alone with technological tools	40	16	21	38	17	132	2.82	1.46
My child's use of technological tools negatively affects his/her interaction with his/her environment.	31	14	17	48	22	132	3.12	1.44
My child's use of technological tools causes problems in his/her language development.	53	12	20	30	17	131	2.59	1.52
My child's use of technological tools has decreased the duration of his/her sleep.	31	18	24	41	18	132	2.98	1.39
My child eats/wants to eat while spending time on technological tools.	46	18	16	40	12	132	2.65	1.45
My child's use of technological tools makes him/her sedentary.	36	23	22	35	16	132	2.79	1.41
My child spends time with technological tools just before going to sleep.	50	23	16	27	16	132	2.52	1.47
I have disagreements with my child about the duration of his/her technology use.	35	24	6	38	29	132	3.02	1.56

My child does not tell us or lies about what he/she is doing while using technology tools.	49	18	23	29	13	132	2.54	1.43
My child tries to use technological tools secretly, although we limit his/her use of technology.	37	26	23	32	14	132	2.70	1.38
My child is annoyed when we try to communicate with him/her while spending time with technological tools	39	14	19	38	22	132	2.92	1.5
My child does not allow us to track his/her technology use.	49	15	17	31	20	132	2.68	1.54



Very low=(1-1.79), Low=(1.8-2-59), Moderate=(2.60-3.39), High= (3.4-4.19), Very high=(4.2-5)

Figure.1: Overall percentage of excessive use of electronic devices in preschool children

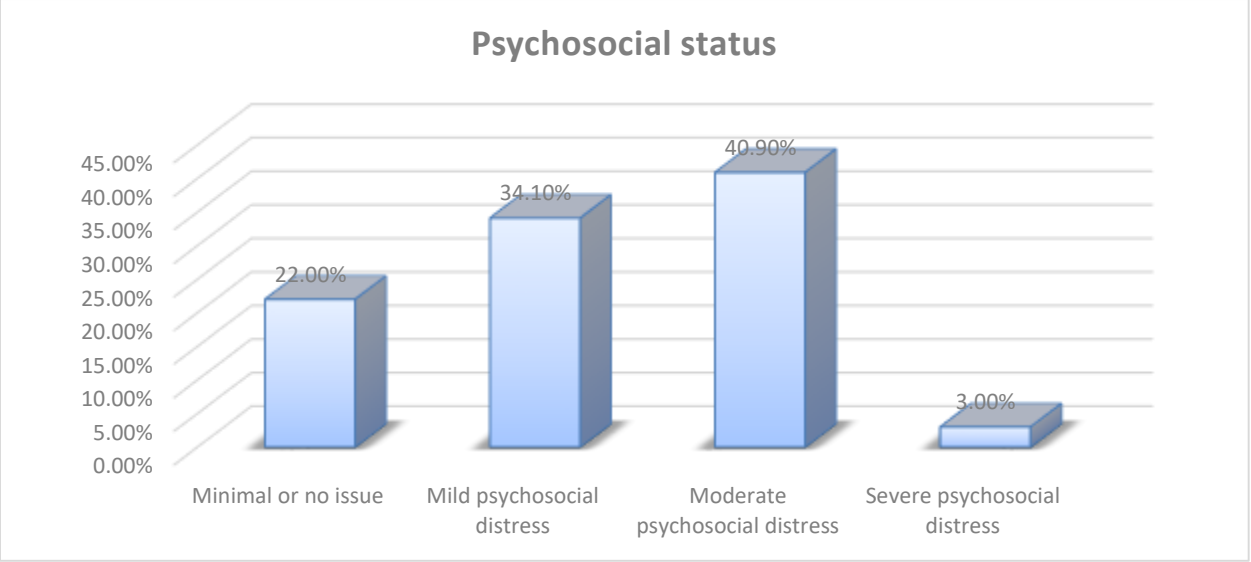
Table 3. Responses regarding psychosocial status of the child.

	Never	Rarely	Sometimes	Often	Always	Total	Mean	SD
My child wakes up crying.	48	24	34	16	10	132	1.36	1.29
My child is very startled in her/his sleep.	45	23	32	22	10	132	1.46	1.32
My child has bad dreams.	36	20	37	22	17	132	1.73	1.37
My child refuses to sleep at night.	38	16	31	27	20	132	1.81	1.44
My child started wetting her/his bed during the night.	60	12	22	25	13	132	1.38	1.46
My child started wetting herself/himself during the day.	77	14	15	17	9	132	.99	1.35

My child is afraid of going to the toilet alone during the day.	41	9	37	26	19	132	1.80	1.43
My child is afraid of the dark.	12	23	27	41	29	132	2.39	1.26
My child has a diminishing appetite.	21	17	32	34	28	132	2.23	1.35
My child eats too much.	29	22	47	24	10	132	1.73	1.21
My child gives us a hard time when she/he eats.	29	18	39	28	18	132	1.91	1.33
My child has difficulty expressing herself/himself.	40	20	34	25	13	132	1.63	1.35
My child overreacts to me leaving him/her.	34	18	36	35	9	132	1.75	1.29
My child has tics such as blinking and teeth grinding.	62	17	28	15	10	132	1.19	1.34
My child always wants to attract attention.	25	12	37	28	30	132	2.20	1.39
My child is hyperactive.	19	14	46	30	23	132	2.18	1.27
My child behaves extremely anxiously.	19	22	34	34	23	132	2.15	1.29
My child is indifferent to what is happening around his/her.	16	27	31	36	22	132	2.16	1.27
My child can spend his time doing nothing and sitting or lying down.	44	20	29	26	13	132	1.58	1.38
My child needs help even with what he/she can do by herself/himself.	17	23	45	31	16	132	2.05	1.19

	Never	Rarely	Sometimes	Often	Always	Total	Mean	SD
My child has difficulty remembering events.	40	23	40	18	11	132	1.52	1.28
My child's speech fluency is impaired.	52	19	34	14	13	132	1.37	1.36
My child has tantrums.	25	21	37	26	23	132	2.01	1.35
My child exhibits aggressive behavior.	36	17	39	24	16	132	1.75	1.36
My child harms herself/himself.	64	17	26	17	8	132	1.15	1.32
My child expresses her/his wishes by crying.	25	19	40	28	20	132	1.99	1.32
My child damages their toys/household items.	51	13	33	20	15	132	1.51	1.42
It is difficult to get my child to talk to me.	46	16	40	14	16	132	1.53	1.38
It is difficult to get my child's attention.	42	19	44	16	11	132	1.50	1.29
My child exhibits disturbing behaviors in social situations.	32	13	38	27	22	132	1.95	1.4
My child looks extremely shy around strangers.	28	15	45	27	17	132	1.92	1.30

Overall Psychosocial status of the child show that less than three quadrants of preschool (71.2%) have a moderate psychosocial distress.



Minimal =(0-31), Mild =(32-62), Moderate=(63-93), Severe=(94-124)

Figure 2. Overall Psychosocial status of the child

4. DISCUSSION

Part One: Discussion for Child Demographical Data Characteristics:

Regarding the age, the age was half of participants have five years regarding the extent of media use among young children. These children are growing up in a media-saturated environment with almost universal access to television, and a striking number have a television in their bedroom. Media and technology are here to stay and are virtually guaranteed to play an ever-increasing role in daily life, even among the very young.

Additional research on their developmental impact is crucial to public health. Recent studies in Iraq have highlighted various health concerns among preschool children (Al-Mendalawi, 2024). These findings underscore the need for comprehensive, culturally sensitive healthcare interventions for preschool children in Iraq.

As regards gender in the current study, for children using electronic devices, there is a majority of males about two thirds of the samples were male while a quarter were female; Boys constantly detected a higher frequency using devices. Current results show that males are more common than females. Preschool-aged males are more likely than girls to use electronics, according to research, (Unplagan *et al*., 2018). While girls participate in a greater range of digital activities, such as painting and communicating, boys are more likely to choose video games (Bukhalenkova *et al*., 2023).

Being an only kid, having a mother who works, and having a father with more education are all factors linked to increasing smartphone usage. Sixty percent of children use electronics for more than an hour every day, which is a large percentage of youngsters who exceed suggested screen time restrictions (P. Rathnasiri & Jayasena, 2022).

Overuse can result in health issues and inadequate sleep, which may have an impact on academic achievement, Experts advise limiting media exposure to less than an hour each day in order to allay these worries, and they stress the value of parental supervision and assistance in teaching kids how to use technology responsibly (Levenson *et al*., 2016).

The highest percentage was from (1-2) hours of time screen per day, representing more than quarter of the total participants, The entry of modern technology into our society in recent years has contributed to the creation of a new generation of children addicted to its use, especially the Internet. Despite the many benefits that networks provide to millions of people around the world, they represent a real danger if used excessively, especially by children and young people.

Preschoolers' excessive screen usage is a rising worry, according to recent studies. Most preschoolers go above the suggested daily limit of one to two hours (M. Musa *et al*., 2023).

Having a personal device, being male, and being older than two years are factors linked to greater screen time. Numerous behavioral and cognitive problems have been connected to excessive screen use. Youngsters who watch for more than two hours a day are far more likely to get inattention issues and symptoms similar to ADHD (Tamana *et a*l., 2019). Furthermore, irregular parental control of screen use is linked to possible attention, IQ, and social skill deficiencies (Elumalai *et al*., 2021).

Addiction to the Internet and smartphones represents one of the manifestations of personality problems, and this may represent a preliminary stage for moving into the world of psychological disorders and complications. most studies have

confirmed that using these devices for more than half an hour a day can affect the child, and this effect is often negative. Some of these studies are, (Ibrahim *et al*., 2022; von Wyl *et al*., 2022), in contrast, study reveal advantages of using the devices within the time that are less than half an hour (Wang, 2024).

components of living and is one of the basic points in life. According to the study data, the adequate monthly income, which came in first place. Therefore, the good income of the family may be reflected negatively and the families with a good income have the means to provide everything for children, including electronic devices and games, this indicates that families with insufficient income are unable to provide everything for children, and according to (Kaur *et al*., 2019) The burden of screen-time can reach to 93.7% in the high-income countries

Regarding birth order of children in the family, the second child occupies the highest percentage, this result indicates that the first child is the child with the most interest, while the second child has less desire and eagerness. Therefore, to make the child calm and get rid of his disturbance, the parents are given electronic devices as a kind of means of comfort for the child the same thing was found in the study of (Nhandi, 2017), The study reveals that middleborn have been more represented than the firstborns.

Families with two children, ranked first. These families indicate that children, especially the second child, use electronic devices as a means of distracting children and getting rid of their annoyance and excessive movements this is agree with the study done by (Siibak & Nevski, 2019).

Numerous screen technologies intended for personal and domestic use have an impact on today's home environment, making family members viewers of the widespread technologies, nuclear families, which live with only a father, mother and children, are the highest percentage in the study. This indicates that single families do not have enough to prevent children from using electronic devices a lot, unlike families living with grandparents and other families, where the use of electronic devices is less because the child is busy with other children, as they are busy with games, dealing and communicating this study is compatible with study by(Duckert & Barkhuus, 2021).

Part Two: Discussion of Problematic Technology Use of Electronic Devices in Preschool Children.

the results revealed that children use electronic devices “high” percentage consider as a one third of a sample, according to these result the mostly of preschool have a high excessive use of electronic devices, these compatible with the studies that are (Ibrahim *et al*., 2022; H. Musa *et al*., 2022; Xiang *et al*., 2022). According to recent surveys, between ninety-one and ninety-s of preschool-aged children use electronic devices, The most widely used devices are televisions and smartphones (Al-Mehmadi *et al*., 2024).

According to the figure 1. show the percentage of excessive use of electronic devices in preschool children, Children’s daily screen time was reported by their parents using the following questions: “On an ordinary workday, how many hours does your kid spend using the computer, tablet, phone, TV, or e-reader? On an average weekend day, how many hours does your child spend using these devices? 5× daily screen time on weekdays plus 2× daily screen time on weekends was used to compute the average daily screen time, which came out to be /7. Additionally, we divided daily screen usage into two groups: moderate (≤ 1 hour per day) and excessive (>1 hour per day). according to previous guidelines (Organization, 2019)and studies (Xie *et al*., 2020; Zhu *et al*., 2020)Many kids spend more time on screens than the one hour that is advised each day, particularly on the weekends, Device usage is typically permitted by parents for enjoyment and educational reasons (Nathan *et al*., 2022). However, more screen usage is linked to a number of mental health conditions, including as ADHD, emotional disorders, and behavioral disorders. Being an only kid, the mother's job, and the parents' educational attainment are all factors that affect the use of technology (A. Rathnasiri *et al*., 2022).

Part Three: Discussion regarding psychosocial status of the child.

Additionally, according to the Figure 4.6 that show the results of Overall Psychosocial status of the child, the figure show that less than three quadrants of preschool have a moderate psychosocial distress.

Research indicates that excessive use of electronic devices can negatively impact preschool children's psychosocial development. Higher levels of screen time are associated with increased externalizing behaviors and total difficulties (McNeill *et al*., 2019). Parental problematic digital technology use is directly linked to child psychosocial difficulties and indirectly related through reduced parent-child interactions and increased child screen time (Wong *et al*., 2020).

Increased utilization of electronic devices is associated with diminished social development in preschoolers, although positive parenting styles can mitigate harmful effects. To promote healthy development, it is recommended to limit electronic app use to less than 30 minutes per day and restrict media program viewing (McNeill *et al*., 2019). Additionally, limiting parents' use of electronic devices in front of young children could be beneficial for childhood psychosocial development (Wong *et al*., 2020).

5. CONCLUSION AND RECOMMENDATION

Conclusion:

Psychosocial Impact: The analysis indicated an obvious correlation between excessive usage of electronic devices and negative psychosocial impacts on preschool children. Some children reported problems such as expressively emotional, aggressive speech and social withdrawal behaviors. 40.9% of children that were analyzed were reported to have moderate problematic behavior.

Recommendation:

1. Programs that inform parents and caregivers about the possible dangers of excessive screen usage should be put in place by childcare facilities and schools. The significance of moderate screen time and its impacts on physical and mental health should be main topics to these sessions.
2. Additional research the study highlights the need to conduct more research on the long-term effects of excessive electronic device usage on preschoolers. Further information on the long-term consequences of early screen exposure on development may be obtained through longitudinal research.
3. Governments and educational establishments have to think about creating regulations that restrict screen time in preschool environments and encourage the use of healthier play and learning options.

REFERENCES

[1] Abdel Razek Barakat, A. M. M., Abdelsattar Gabr, A. A., & Farag Hassan, H. H. (2020). THE EFFECTIVENESS OF A PROPOSED PROGRAM BASED ON THE STORY STRATEGY TO EDUCATE PRE-SCHOOL MOTHERS ABOUT WAYS TO PROTECT THEIR CHILDREN FROM ELECTRONIC HARASSMENT. *HUMANITIES AND SOCIAL SCIENCES*, *8*(4), 1566–1577. https://doi.org/doi.org/10.29333/iji.2025.18235a

[2] Al-Mehmadi, S. O., Halawani, A. T., Sulaimani, M. T., & Al-Mehmadi, T. O. (2024). Electronic device usage among preschool children and its association with mental health status in Saudi Arabian kindergartens. *Saudi Medical Journal*, *45*(9), 945.

[3] Al-Mendalawi, M. D. (2024). Prevalence of Obesity in Preschool Children at Hilla/Babylon/Iraq 2020. *Mustansiriya Medical Journal*, *23*(2), 101.

[4] Alrikabi, A. M., Atiyah, A. T., & Alatabi, M. A. (2020). Effects Of usage of Smart devices On Child Health and Behavior In Thi-Qar Governorate/Comparative Study (2018–2019). *University of Thi-Qar Journal Of Medicine*, *19*(1), 55–64.

[5] Bukhalenkova, D. A., Chichinina, E. A., & Almazova, O. V. (2023). How Does Joint Media Engagement Affect the Development of Executive Functions in 5to-7 year-old Children? *Psychology in Russia: State of the Art*, *16*(4), 109–127.

[6] Duckert, M., & Barkhuus, L. (2021). To Use or Not to Use: Mediation and Limitation of Digital Screen Technologies within Nuclear Families. *Proceedings of the 2021 ACM International Conference on Interactive Media Experiences*, 73–83.

[7] Elumalai, K. V., Sankar, J. P., Kalaichelvi, R., John, J. A., Menon, N., Alqahtani, M. S. M., & Abumelha, M. A. (2021). Factors affecting the quality of e-learning during the COVID-19 pandemic from the perspective of higher education students. *COVID-19 and Education: Learning and Teaching in a Pandemic-Constrained Environment*, *189*(3), 169.

[8] Ibrahim, G. M., Sorour, A. S., El-Ghany, A., & Mustafa, G. (2022). Excessive electronic media exposure in developing behavior problems among preschool children. *Zagazig Nursing Journal*, *18*(2), 82–91.

[9] Kaur, N., Gupta, M., Malhi, P., & Grover, S. (2019). Screen Time in Under-five Children. *Indian Pediatrics*, *56*(9), 773–788.

[10] Konca, A. S. (2022). Digital technology usage of young children: Screen time and families. *Early Childhood Education Journal*, *50*(7), 1097–1108.

[11] Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2016). The association between social media use and sleep disturbance among young adults. *Preventive Medicine*, *85*, 36–41.

[12] McNeill, J., Howard, S. J., Vella, S. A., & Cliff, D. P. (2019). Longitudinal Associations of Electronic Application Use and Media Program Viewing with Cognitive and Psychosocial Development in Preschoolers. *Academic Pediatrics*, *19*(5), 520–528. https://doi.org/https://doi.org/10.1016/j.acap.2019.02.010

[13] Musa, H., Rashid, A. A., Sadik, S. F. M., Goh, J. X., Kesavan, G. V., & Nasrudin, N. (2022). Factors Associated

with Excessive Screen Time Usage among Preschool Children and Risk for Behavior Problems. *Malaysian Journal of Paediatrics and Child Health*, *28*(2), 13–25.

[14] Musa, M., Mas'ud, M., Firman, A., & Mohammed, R. U. (2023). Educational products quality and its effect on student loyalty through mediating student satisfaction. *Al-Musannif*, *5*(1), 1–16.

[15] Nathan, T., Muthupalaniappen, L., & Muhammad, N. A. (2022). Prevalence and description of digital device use among preschool children: A cross-sectional study in Kota Setar District, Kedah. *Malaysian Family Physician: The Official Journal of the Academy of Family Physicians of Malaysia*, *17*(3), 114.

[16] Nhandi, D. (2017). Siblings' Birth Order Interaction and Self-esteem Development: Forgotten Social Setting for e-Health Delivery in Tanzania? *International Journal of Education and Research*, *5*(1), 51–68.

[17] Organization, W. H. (2019). *Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age*. World Health Organization.

[18] Paulus, F. W., Möhler, E., Recktenwald, F., Albert, A., & Mall, V. (2021). Electronic Media and Early Childhood: A Review. *KLINISCHE PADIATRIE*.

[19] Rathnasiri, A., Rathnayaka, H., Yasara, N., & Mettananda, S. (2022). Electronic screen device usage and screen time among preschool-attending children in a suburban area of Sri Lanka. *BMC Pediatrics*, *22*(1), 390.

[20] Rathnasiri, P., & Jayasena, S. (2022). Green building information modelling technology adoption for existing buildings in Sri Lanka. Facilities management perspective. *Intelligent Buildings International*, *14*(1), 23–44.

[21] Rofi'ah, N. M. I. R. (2021). Dampak Penggunaan Gadget Pada Interaksi Sosial Anak Usia Dini. *UMMUL QURA:JURNAL INSTITUT PESANTREN SUNAN DRAJAT (INSUD) LAMONGAN*, *16*(1), 60–70. https://doi.org/https://doi.org/10.55352/uq.v16i1.380

[22] Siibak, A., & Nevski, E. (2019). Older siblings as mediators of infants' and toddlers'(digital) media use. In *The routledge handbook of digital literacies in early childhood* (pp. 123–133). Routledge.

[23] Tamana, S. K., Ezeugwu, V., Chikuma, J., Lefebvre, D. L., Azad, M. B., Moraes, T. J., Subbarao, P., Becker, A. B., Turvey, S. E., & Sears, M. R. (2019). Screen-time is associated with inattention problems in preschoolers: Results from the CHILD birth cohort study. *PloS One*, *14*(4), e0213995.

[24] Tsang, S. M., Cheing, G. L., Lam, A. K., Siu, A. M., Pang, P. C., & Yip, K. C., ... & Jensen, M. P. (2023). Excessive use of electronic devices among children and adolescents is associated with musculoskeletal symptoms, visual symptoms, psychosocial health, and quality of life: a cross-sectional study.. *Frontiers in Public Health*, *11*, 2023.

[25] Unplagan, K., Balasubramaniam, B., Premkumar, T., Chien, J. L. C., Rao, A. S., & Rasit, R. A. S. A. (2018). Impact of electronic devices on the life of children: A cross sectional study from Ipoh, Perak, Malaysia. *Quest International Journal of Medical and Health Sciences*, *1*(2), 30–34.

[26] von Wyl, A., Schneebeli, L., Hubacher, R., & Braune-Krickau, K. (2022). Kindergarten Children's Use of Smartphones and Tablets: Associations with Social-Emotional Development and Behavioral Problems-A Scoping Review. *Praxis Der Kinderpsychologie Und Kinderpsychiatrie*, *71*(4), 327–344.

[27] Wang, Y. (2024). Advantages and Limitations of Information Technology in Preschool Education Teaching. *Transactions on Social Science, Education and Humanities Research*, *6*, 14–18.

[28] Wong, R. S., Tung, K. T. S., Rao, N., Leung, C., Hui, A. N. N., Tso, W. W. Y., Fu, K.-W., Jiang, F., Zhao, J., & Ip, P. (2020). Parent technology use, parent–child interaction, child screen time, and child psychosocial problems among disadvantaged families. *The Journal of Pediatrics*, *226*, 258–265.

[29] Xiang, H., Lin, L., Chen, W., Li, C., Liu, X., Li, J., Ren, Y., & Guo, V. Y. (2022). Associations of excessive screen time and early screen exposure with health-related quality of life and behavioral problems among children attending preschools. *BMC Public Health*, *22*(1), 1–12. https://doi.org/10.1186/s12889-022-14910-2

[30] Xie, G., Deng, Q., Cao, J., & Chang, Q. (2020). Digital screen time and its effect on preschoolers' behavior in China: results from a cross-sectional study. *Italian Journal of Pediatrics*, *46*, 1–7.

[31] Zhu, R., Fang, H., Chen, M., Hu, X., Cao, Y., Yang, F., & Xia, K. (2020). Screen time and sleep disorder in preschool children: identifying the safe threshold in a digital world. *Public Health*, *186*, 204–210.