International Journal on Science and Technology (IJSAT)
E-ISSN: 2229-7677 ● Website: www.ijsat.org ● Email: editor@ijsat.org

Mind over Mobile: Unpacking the Effects of Mobile Phone Dependence on Adolescent Mental Health

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Abstract

Background: Mobile phone dependence is increasingly recognized as a critical issue among adolescents, with significant implications for psychological well-being. Excessive smartphone use has been linked to heightened anxiety, depression, and loneliness. This study investigates the relationship between mobile phone dependence and psychological well-being, considering demographic factors such as age, sex, and socioeconomic status.

Objective: To assess mobile phone dependence and psychological well-being among adolescents attending the outpatient department (OPD) of a selected tertiary care hospital in Chennai.

Methods: This study adopted a non-experimental, descriptive research design using a non-probability convenience sampling technique with 60 adolescent participants. The tools used were a Socio-Demographic Data sheet, a Test of Mobile Phone Dependence, and Ryff's Psychological Well-Being Scale.

Results: The study found that 25% of adolescents were moderately dependent on mobile phones, 66.7% were highly dependent, and 8.3% were very highly dependent. Psychological well-being scores were distributed as follows: 25% had high well-being, 66.7% had moderate well-being, and 8.3% had low well-being. A strong negative correlation (r = -0.75) was found between mobile phone dependence and psychological well-being. Demographic factors such as age, sex, socioeconomic status, family structure, and mobile phone usage duration were significantly associated with mobile phone dependence and psychological well-being.

Conclusion: The study demonstrates a significant negative correlation between mobile phone dependence and psychological well-being among adolescents. Demographic factors also play a

significant role in both dependence and well-being. Addressing excessive smartphone use through targeted interventions is essential to improving adolescent mental health outcomes.

Keywords: Mobile phone dependence, psychological well-being, adolescents, demographic factors, intervention.

Introduction:

Mobile phone use among adolescents has grown exponentially in recent years, with smartphones becoming an integral part of daily life. Although smartphones provide numerous advantages, such as instant Overuse of communication and information access can result in dependency and negatively impact mental health. The phenomenon of mobile phone dependence is marked by a compulsive need to check and use these devices, often leading to significant disruptions in daily activities and personal relationships. Numerous studies have documented alarming trends, highlighting that individuals are spending an increasing amount of time on their phones—time that could otherwise be dedicated to face-to-face interactions or engaging in offline activities. This excessive screen time has been linked to adverse effects on mental health, creating a complex interplay between technology use and psychological health.

Previous studies have linked mobile phone dependence to increased levels of anxiety, depression, and loneliness, underscoring the need for research into this growing concern. This study seeks to examine the correlation between mobile phone reliance and psychological well-being in adolescents, emphasizing the influence of demographic characteristics.

Materials and Methods:

A quantitative descriptive study was conducted to assess mobile phone dependence and psychological well-being among adolescents attending the OPD at a tertiary care hospital in Chennai.A non-probability convenience sampling technique was used to select 60 adolescent participants who met the inclusion criteria: adolescents aged 12-18 years, attending the OPD, and willing to participate in the study.Data were collected through structured interviews with participants in the OPD. Informed consent was obtained from both the adolescents and their guardians prior to participation.

SAMPLE SIZE CALCULATION:

The sample size was calculated based on Wacks Y. et. al.'s (2021), previous study, Adolescents resorted to psychological well-being was 53% with a 95% confidence limit and 25% relative precision of estimate using the following formula.

$$\text{The formula for Sample Calculation} = \frac{(Z)^2 X (1-p)}{(p) X (e)^2}$$

Z=1.96 = 95% level

P = 53.00%

e = 25%

Sample size (N) = $(1.96)^2$ x (1-0.53)/0.53x $(0.25)^2$

= 3.84(0.47)/0.53x0.0625

= 1.81/0.03

= 60 Adolescents

DATA COLLECTION PROCEDURE

The study was conducted after approval of the Institutional Ethical Committee.Samples were selected by the non-probability accidental method.The purpose of the study was explained to the participants.Informed consent was obtained from the participants.Structured and semi-structured questionnaires were administered to study participants; which took 10-15 minutes.

Statistical Analysis

Data were processed via IBM SPSS version 22. Categorical variables were summarised as frequencies (n) and percentages (%), whereas continuous variables were expressed as mean ± standard deviation (SD). The Chi-square test was utilised to evaluate correlations among categorical variables. The Pearson correlation coefficient was employed to assess the association between mobile phone dependence and psychological wellbeing.The threshold for statistical significance was established at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee, Madras Medical College (No. IEC-MMC/Approval/65042024) and permission was granted by the Director of IMH, Chennai. Informed consent was obtained from all participants, and the rights and confidentiality of participants were safeguarded.

RESULTS:

Sociodemographic profile of the study participants:

The majority of participants are aged 17 (20%), with an even gender split (50% male, 50% female). Most are in the 12th grade (20%) or 10th grade (16.7%), and half belong to the middle socioeconomic status (50%). Urban residents comprise 50% of the sample, and 58.3% come from nuclear families. Parental education is varied, with secondary education being the most common (25%). The majority have used mobile phones for 2-3 years (25%) and have internet access (83.3%) and physical activity is mainly weekly (50%), with 33.3% engaging daily.

TABLE 1-FREQUENCY AND PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES

DEMOGRAPHIC VARIABLES		Frequency (n)	Percentage (%)
Age	13	5	8.3
	14	7	11.7
	15	10	16.7
	16	8	13.3
	17	12	20
	18	9	15
	19	9	15
Gender	Male	30	50
	Female	30	50

Educational Level	8th Grade	5	8.3
	9th Grade	7	11.7
	10th Grade	10	16.7
	11th Grade	8	13.3
	12th Grade	12	20
	College Freshman	9	15
	College II year	9	15
Socioeconomic Status	Low	15	25
	Middle	30	50
	High	15	25
Residential Area	Urban	30	50
	Suburban	20	33.3
	Rural	10	16.7
Family Structure	Nuclear	35	58.3
	Joint	20	33.3
	Single-parent	5	8.3
Parental Education	No formal education	5	8.3
	Primary	10	16.7
	Secondary	15	25
	Higher Secondary	10	16.7
	Graduate	10	16.7
	Postgraduate	10	16.7
Duration of Mobile Phone Use	Less than 1 year	5	8.3
	1-2 years	10	16.7
	2-3 years	15	25

	3-4 years	10	16.7
	4-5 years	10	16.7
	More than 5 years	10	16.7
Internet Access	Yes	50	83.3
	No	10	16.7
Physical Activity	Daily	20	33.3
	Weekly	30	50
	Rarely	10	16.7

Mobile Phone Dependence:

TABLE 2. LEVEL OF MOBILE PHONE DEPENDENCE SCORE

SCORE RANGE	INTERPRETATION	NUMBER OF PARTICIPANTS	PERCENTAGE (%)
0 - 22	Low dependence	0	0%
23 - 44	Moderate dependence	15	25%
45 - 66	High dependence	40	66.70%
67 - 88	Very high dependence	5	8.30%

The above table represents the level of mobile dependence score. In general, 25% were moderately dependent,66.70% were highly dependent and 8.30% were Very highly dependent.

Psychological Well-Being:

TABLE 3. LEVEL OF PSYCHOLOGICAL WELL-BEING SCORE

Level of Score	Interpretation	Number of Participants	Percentage (%)
1-42	Low Psychological Well-Being	5	8.30%
43-84	Moderate Psychological Well-Being	40	66.70%

85-126	High Level of Psychological Well-Being	15	25%

In general, 25% had a high level of well-being score,66.70% moderately psychological well-being score and 8.30% had a low level of psychological well-being score.

TABLE-4 CORRELATION BETWEEN THE LEVEL OF MOBILE PHONE DEPENDENCE AND PSYCHOLOGICAL WELL-BEING AMONG ADOLESCENTS

Variable	**Mean**	**Standard Deviation**	**Correlation coefficient**
Dependence Score	51.77	4.09	**r ≈ -0.75**
Psychological Well-Being Score	70.33	17.54	This value indicates a strong negative correlation, suggesting that as dependence increases, psychological well-being tends to decrease significantly.

The correlation between the level of Mobile phone dependence and psychological well-being among Adolescents. The r =-0.75 value indicates a strong negative correlation, suggesting that as mobile phone dependence increases, psychological well-being tends to decrease significantly.

Association between the level of psychological well-being score and Adolescents

Association between the level of Mobile phone dependence score and selected demographic variables of adolescents. Age, Sex, socio-economic status, family structure, and duration of mobile phone use, showed significant associations with mobile phone dependence($p < 0.05$).Age, Gender, Socioeconomic Status, Family Structure and Parental Education showed significant associations with psychological well-being levels. It was tested using the chi-square test.

Discussion:

The findings of this study align with existing research indicating that mobile phone dependence negatively impacts psychological well-being among adolescents. The significant correlation between mobile phone use and well-being suggests that excessive use of mobile phones could contribute to feelings of loneliness, depression, and anxiety. The role of demographic factors in shaping both mobile phone dependence and psychological well-being emphasizes the need for targeted interventions that consider these factors.These result align with prior research by **Seo et al. (2023)** study confirmed a close relationship between mobile phone dependence and negative moods, highlighting the significant impact of excessive smartphone use on adolescents' mental health.

Healthcare providers and educators should be aware of the potential risks associated with excessive smartphone use among adolescents. Interventions aimed at reducing mobile phone dependence, such as

digital detox programs or promoting healthier mobile phone habits, could be beneficial in improving mental health outcomes.

Implications and recommendations:
Nurses can use these findings to develop interventions that reduce mobile phone dependence and enhance psychological well-being among adolescents, improving overall mental health outcomes in this population. Training programs should include strategies for identifying and managing mobile phone addiction. Incorporating case studies and real-life scenarios can help students understand the practical implicationsFuture studies should explore the longitudinal impacts of the long-term effects of mobile phone dependence on psychological well-being.

Conclusion:
This study demonstrates a significant negative correlation between mobile phone dependence and psychological well-being among adolescents. Demographic factors such as age, sex, socioeconomic status, family structure, and mobile phone usage duration influence both dependence and well-being. Interventions aimed at reducing mobile phone dependence are essential for promoting healthier mental health outcomes among adolescents.

Conflict of Interest – None

Source of funding – Self-funding

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