Original Research Article

Impact of mobile phone use among children in an area in Rangareddy, Telangana

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Abstract

Background: 69 per cent of children surveyed across the eight countries use a mobile phone. Among 15 and 16-year-olds surveyed, 10 and 12 years were the most common ages to first receive a mobile phone. **Objectives:** To know the Prevalence and associate factors of mobile usage in Parents and children and to know the health effects due to mobile usage in children. **Material and Methods:** Study was a Cross Sectional Study conducted among children between the age of 5-15 years, the sample size calculated was 320 and adding non response rate as 10 percent, the sample size is coming to 352. Data was collected by face to face interview and analysis done using Microsoft excels using percentages and proportions. **Results:** 90.0 % of the parents use their own mobile phone and in that 82.1% have smart mobile which was having internet access and majority of Parents, 239 (67.89%) use mobile phone for more than four hours. 96.6% of the children were using their mobile phone. Parents are giving mobile to the children mainly to help him for academics 230 (65.34 %), to introduce him to technology 189 (53.69%). Health effects due to use of Mobile phones, Physical problems like eye strain 67 (19.04), eye watering 98 (27.84), Neck pain 280 (79.54), Headache 189 (53.69), laziness and pain in fingers and wrist 23 (6.53) etc. **Conclusion:** That usage of mobile phones by young generation is increasing with time trends; there is not only increase in prevalence but also leading to physical, mental and social problems due to high mobile usage in children.

Key Words: Mobile usage, Health effects.

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Received Date: 02/01/2018 Revised Date: 20/02/2018 Accepted Date: 08/03/2018
DOI: https://doi.org/10.26611/1014533

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 12 March 2018

INTRODUCTION

Mobile or cell phones are now a days an integral part of modern telecommunications in every Individual life. In many countries, over half of the population use mobile phones and the mobile phone Market is growing rapidly.[1] The use of mobile phones (MP) has significantly increased globally since the last decade. During the last decade, functions other than communication have been integrated into the MP, such as email/Internet access and various forms of entertainment such as videos, music, or games. On average, 69 per cent of children surveyed across the eight countries use a mobile phone. Among 15 and 16-year-olds surveyed, 10 and 12 years were the most common ages to first receive a mobile phone.[2] Health is major public health implications on long term basis. Besides the number of cell phone calls per day, the length of each call and the amount of time people use cell phones are important factors which enhance the health related risk.[3] A major source of sedentary behavior in young people is screen time, which refers to time spent watching television or movies, playing video games, using computers and using mobiles[4]. In 2011, International Agency for Research on Cancer (IARC) classified mobile phone radiationpossibly carcinogenic, means that there "could be some risk" of carcinogenicity, so additional researchinto the long-term, heavy use of mobile phones needs to be conducted[5]. Scientists have reported adverse health effects of using mobile phones

including changes in brain activity, reaction times, and sleep patterns. Insufficient sleep, delayed sleep-wake behavior, and sleep disturbances are common among youth and adolescents around the world. In addition, 77% of adolescents reported having sleep problems, with waking up feeling un-refreshed (59%) and difficulty falling asleep (42%) most commonly reported[6]. Research has shown an increased risk of traffic accidents, about 3-4 times greater chance of an accident, when mobile phones (either handheld or with a "hands-free" kit) are used while driving due to distraction[7]. Minor side effects such as headache, sleep disturbance, lack of concentration, impairment of short-term memory, dizziness, tinnitus, fatigue, and benign warming of the ear have been reported[8]. Other than the physical symptoms, excessive screen time in children is also associated with obesity, aggressive behavior, may negatively impact attention span, language development and cognitive development. Considering these various health effects, Pediatric organizations recommend no more than 1–2 hours of daily screen time for children aged 2–5 years and discourage screen time for children younger than the of age 2[9]. Several research studies on children and computing have shown that children use home computers for various purposes, including leisure activities (e.g. game playing and web surfing) and school work[10]. Only few studies were conducted to assess the pattern of mobile use and reasons behind the mobile use and the health effects of mobile use in this area. So the present study is conducted to know the pattern of mobile use and its health effects.

MATERIALS AND METHODS

The present Cross sectional study was conducted at Department of Pediatrics outpatient in a Private Medical college, Telangana state from October 2017 to November 2017. Study population in the present study was children from the age of 5 to 15 years. Study was approved by Institutional ethical committee.

Inclusion Criteria

1. Children between the ages of 5-15 years.
2. Children attending the Pediatric Outpatient department of the Private medical college.
3. Parents who have given consent and are ready to participate in the study.

Exclusion Criteria

1. Children below the age of 5 years and above the age of 15 years.
2. Mentally challenged children.

Sample size - N= 4PQ/L2 is considered for calculation as the study is qualitative study. The prevalence of Mobile usage was 92.1 %. Allowable error considered as 10% and with confidence interval of 95%, the sample size calculated was 320. Considering non response rate as 10% the sample size of 352 was taken.

Data collection tool: A Predesigned and pretested questionnaire which include Identification data, Socio demographic profile; Usage of mobile phone by parents, usage of mobile phone by children and health effects of mobile usage to children.

Methodology: The Parents and the children were first explained regarding the purpose and importance of the study and then the participation consent was taken from the parents. Once the consent was taken the data was collected by face to face interview of the parents and children using a predesigned and pretested questionnaire which included Identification data, Socio demographic profile; Usage of mobile phone by parents, usage of mobile phone by children and health effects of mobile usage to children. The interview was conducted in local language and the doubts of the parents and children were clarified immediately. The Parents and children were educated regarding the harmful effects of excess mobile and other electronic gadget usage and they were given counseling regarding how to restrict children from usage of mobile and electronic gadgets. The filled questionnaire with ticked answers were collected and then the collected data was entered on Microsoft excel. Then the data was analyzed in percentages and Proportions.

RESULTS

Total children population considered in the study was 352 and as shown in Table 1, out of 352 children, 190 (53.98%) were males and 162 (46.02%) were females. All the children considered in the study were between 5-15 years, in that 102 (28.98%) were between 5-8 years, 120 (34.09%) were between 9-12 years, 130 (36.93%) were between 13-15 years and the average age of children considered was 11.2 years. 120 (34.09%) families belong to nuclear families, 130(36.93%) families belong to Joint families, 102 (28.98%) families belong to extended nuclear families. All the Parents, both Father and Mother have studied more than secondary education and majority of fathers were graduates 243 (69.03%) and Majority of mothers studied High school education 208 (59.09%). According to Kuppuswamy's classification[11] majority of families belong to Class III and Class IV socio economic class 83 (23.58) and 209 (59.38).

Table 1: Distribution of children according to Socio demographic factors

Socio-demographic factors	Factor	No (%)
Gender	Male	190(53.98)
	Female	162(46.02)
Age (yrs)	5-8	102(28.98)
	9-12	120(34.09)
	13-15	130(36.93)
Average Age	11.2 years	
Type of Family	Nuclear	120(34.09)
	Joint	130(36.93)
	Extended	102(28.98)
Fathers Education	Illiterate	0
	Primary	0
	Secondary	9(2.56)
	Higher	100(28.41)
	Graduation	243(69.03)
Mothers Education	Illiterate	0
	Primary	0
	Secondary	120(34.09)
	Higher	208(59.09)
	Graduation	24(6.8)
Socio Economic Classification*	Class-I	10(2.8)
	Class-II	20(5.7)
	Class-III	83(23.58)
	Class-IV	209(59.38)
	Class-V	30(8.5)

*- Kuppuswamy Classification

Table 2 shows mobile usage among parents, and it was found that 90.0% of the parents use their own mobile phone and in that 82.1% have smart mobile which was having internet access and majority of Parents, 239 (67.89%) use mobile phone for more than four hours, Only few percentage of parents 82 (23.29%) use mobile phone for 1-3 hours, Parents who use mobile phone for less than 1 hour is only 31 (8.8%).

Table 2: Distribution of parents according to mobile use

	Factor	No(%)
Does Parents have Mobile	Yes	320(90.9)
	No	32(9.09)
Does Parents have smart Mobile	Yes	289(82.1)
	No	31(8.8)
Does parents have internet access on mobile	Yes	289(82.10)
	No	31(8.8)
How many hours parents use mobile	<1 hour	31(8.8)
	1-3 hour	82(23.29)
	>4 hours	239(67.89)

Table 3 shows distribution of children according to mobile use, and it is showing that only 12 (3.4 %) do not use mobile phone and the remaining 96.6% of the children were using their mobile phone, which may be their Own mobile (8.52%), Parents Mobile 270 (76.70%) or Relatives /Friends Mobile 40 (11.36%). Most of the children 179 (50.85%) use mobile for more than 4 hours and 123 (34.94 %) of people use mobile for 1-3 hours and only few Percentage 10.79 (38) of people use mobile for less than one hour. Most of the children 280 (79.54) use mobile phone for internet surfing, playing games, watching you tube 231(65.62) and only some 98 (27.84) use mobile for listening to music and chatting with friends 49 (13.92). Parents are giving mobile to the children mainly to help him for academics 230 (65.34 %), to introduce him to technology 189 (53.69%), to avoid tantrums for mobile 189 (53.69%), for social prestige 190 (53.97%) to keep the child engaged 99 (28.12%) and some because children don't listen to the parents 209 (59.37%).

Table 3: Distribution of children according to mobile use

	Factor	No(%)
Whose Mobile does the child use	Own Mobile	30(8.52)
	Do not Use Mobile	12(3.40)
	Parents Mobile	270(76.70)
	Relative/Friends Mobile	40(11.36)
How many hours child uses Mobile	<1 hr	38(10.79)
	1-3 hr	123(34.94)
	>4 hr	179(50.85)
Purpose of using Mobile phone	Internet Surfing	280(79.54)
	Chatting with friends	49(13.92)
	Playing Games	231(65.62)
	Listening to music	98(27.84)
	Watching U Tube	231(65.62)
	Others	89(25.28)
Why Mobile is being given to child	To Keep child Engaged	99(28.12)
	Due to his tantrums for mobile	189(53.69)
	It's Helpful for him in Academics	230(65.34)
	To Introduce him to technology	189(53.69)
	For societal Prestige	190(53.97)
	Children doesn't Listen	209(59.37)

Table 4: Distribution of children according to the Health effects of mobile use

	Eye Strain	67(19.04)
Physical Problems	Eye Watering	98(27.84)
	Laziness Pain in Fingers and wrist	23(6.53)
	Reduction in Physical activity	289(82.1)
	Neck pain	280(79.54)
	Headache	189(53.69)
Mental Problems	Anxious	67(19.03)
	Irritable	89(25.28)
	Reduction in sleep	89(25.28)
	Aggressive behavior for Mobile	289(82.1)
Social Problems	Not Mixing with Friends	102(28.98)
	Fighting with Friends	287(81.53)
	Watching Adult sites	30(8.5)
	Not Obeying parents	290(82.38)
	Reduction in school grades	297(84.37)

Table 4 is showing various health effects due to use of Mobile phones, which were mainly divided in to Physical problems like eye strain 67 (19.04), eye watering 98 (27.84), Neck pain 280 (79.54), Headache 189 (53.69), laziness and pain in fingers and wrist 23 (6.53), Reduction in physical activity 289 (82.1%). Mental problems children are suffering from are, they are becoming anxious on smaller things 67 (19.03), Irritable 89 (25.28), reduction in sleep 89 (25.28), aggressive behavior 289 (82.1). Some of the social problems enlightened in the study due to mobile usage were not obeying parents in 290 (82.38), Reduction in school grades in 297 (84.37) not mixing with friends 102(28.98 %), fighting with friends 287 (81.53) and watching adult sites 30 (8.5).

DISCUSSION

The present study may be the first or among the first studies in Telangana region to investigate association between mobile usage and wellness of children. With the growing Popularity, availability, attractiveness of mobile Phone, children have begun to use Mobile phone at an earlier age and have a longer lifetime exposure to Mobile phones.

In the present study, Out of 352 children, 53.98% were males and 46.02% were females and the children considered in the study were between 5- 15 years of which, 28.98% were between 5-8 years, 34.09% were between 9-12 years, 36.93% were between 13-15 years and the average age of children considered was 11.2 years and coming to type of families, 34.09% of families belong to nuclear families, 130(36.93%) of families belong to Joint families, 28.98% of families belong to extended nuclear families and Majority of families belong to Class III and Class IV socio economic class 23.58% and 59.38%. The demographic pattern in the present study is similar to the Bansal *et al* study[12], Valerie Carson *et al*[13] study. In the Present study 320 (90.0 %) of the parents use mobile phone and in that 289 (82.1%) use smart mobile which was having internet access and majority of Parents, 239 (67.89%) use mobile phone for more than four hours, Only few percentage of parents 82 (23.29%) use mobile phone for 1-3 hours, Parents who use mobile phone for less than 1 hour is only 31 (8.8%). The findings of the present study regarding use of mobile by the parents is similar to the Bansal S *et al* study[12] in Marathwada region of Maharashtra where 92.1 % of the parents use mobile, 77.8 % of parents have smart phones and in that 72.2% of parents have internet access. Only 13.5 % of parents use mobile phone for more than 4 hours per day in Bansal *et al* study[12] which is much lesser percentage than (67.89%) our study and the Percentage of Parents using mobile phone between 1-3 hours in the present study is 23.29% where as in Bansal *et al* study the usage is 71.1%. Hours of usage of mobile by the parents were more in the present study. In the present study, the Prevalence of mobile usage by the children is 96.6% which may be their Own mobile (8.52%), Parents Mobile 76.70% or Relatives /Friends Mobile 11.36%. Prevalence is similar to Bansal S *et al*[12] study (96.3%) in Marathwada region. The Prevalence is much higher in the present study compared to the prevalence in china[14] by Zheng F *et al* study (72.9%) and in Korea[15] (64.5 %), China[16] (63.2%) and Iran[17] (31.4%).High prevalence in the present study may due to urban area study and also increase due to newer data. Majority of the children 179 (50.85%) use mobile for more than 4 hours and 123 (34.94 %) of people use mobile for 1-3 hours and only few Percentage 10.79 (38) of people use mobile for less than one hour, similar to Muduli JR *et al* study[18] where 68% spend more than 6 hours with the mobile where as in Bansal *et al* study[12] Majority (43.1%) use mobile phone for 1-3 hours and only 28.8% use mobile for more than 4 hours, this controversy in hours of mobile usage may be due to newer trends of more usage of mobile for all the games and internet surfing. Most of the children 280 (79.54) use mobile phone for internet surfing, playing games and watching you tube 231 (65.62) while only some 98 (27.84) use mobile for listening to music and chatting with friends 49 (13.92) where as in Bansal *et al*[12] study only 42.5% use mobile for playing games, 35% for watching you tube, 25.1% for surfing internet. Percentage of children, watching you tube and surfing internet is more in the present study might be due to more attraction and academic interest to recent games and internet sites. The reason Parents are giving mobile to the children in the present study was mainly to help him for academics 65.34 %, to introduce him to technology 189(53.69%), to avoid tantrums for mobile 53.69%, for social prestige 53.97% to keep the child engaged 28.12% and some because children don't listen to the parents 59.37%. Where as in Bansal *et al*[12] study parents gave mobile to tackle the tantrums 37.1% and to keep child engaged 32.1%. The purpose of giving mobile in the present study in majority of cases was with good intention in our study. Although it is proven that usage of computer and mobile for academic and technology introduction will definitely have positive effects on the child by improving his skills, concentration and keeping up with current pace they may have some harmful effects. The health effects of Mobile phones in the present study, were mainly divided in to Physical problems like eye strain 19.04%, eye watering 27.84%, Neck pain 79.54, Headache 189 (53.69), laziness and pain in fingers and wrist 6.53%, Reduction in physical activity 82.1%. Mental problems children are suffering from are, they are becoming anxious on smaller

things 19.03%, Irritable 25.28%, reduction in sleep 25.28%, aggressive behavior 82.1%. Some of the social problems enlightened in the study due to mobile usage were not obeying parents in 290 (82.38), Reduction in school grades in 297 (84.37) not mixing with friends 102(28.98 %), fighting with friends 287(81.53) and watching adult sites 30 (8.5). Similar physical Problems were seen in Bansal S *et al*[12] study, Hale L *et al* study[19]. MudaliJr *et al*[18] found direct relation between anxiety and stress levels. In Subrahmanyam K *et al* [20] a survey they found that people with gadget addiction display several troubling symptoms, such as the fear of missing something important when offline; a detachment from close people ; headaches, poor vision, social anxiety. With respect to high mobile usage continuous monitoring of health is essential for children with high mobile usage.

CONCLUSIONS

The study concludes that usage of mobile phones by young generation is increasing with time trends, there is not only increase in prevalence but also increase in screen time in children thus leading to physical, mental and social problems due to high mobile usage in children. Thus there is great need for the parents to be educated regarding appropriate use of mobile phones.

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Source of Support: None Declared
Conflict of Interest: None Declared