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ASSESSMENT OF SMARTPHONE ADDICTION AMONG HIGHER SECONDARY SCHOOL STUDENTS IN A RURAL AREA OF SOUTHERN RAJASTHAN

Community Medicine

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ABSTRACT

With advancement in technology, smartphone has become a part and parcel of our lives and students are no exception to that. This study was planned to estimate prevalence of smartphone addiction and pattern of smartphone usage among school students in Southern Rajasthan. A cross-sectional study was conducted in January 2018 in Government Senior Secondary School, Vallabhnagar. A pre-tested questionnaire, consisting of Smartphone Addiction Scale- Short Version (SAS-SV), was administered to 143 higher secondary school students. Data were analyzed using Microsoft Excel version 2010 and SPSS ver.21. The prevalence of smartphone addiction was 22.54% among students. Smartphone addiction was significantly associated with gender, socio-economic status, total duration of smartphone use and duration of use on a typical day. Males had significantly higher mean SAS-SV score and average duration of daily smartphone usage as compared to females. Information, education and communication activities need to be strengthened to generate awareness regarding judicious use of smartphones.

KEYWORDS

smartphone, students, addiction

INTRODUCTION

With advancement in technology, smartphone has become a part and parcel of our lives and students are no exception to that. Smartphone can be used to play games, use messenger systems and search for information besides making phone calls [1]. With abundant applications, smartphones provide users with internet-based communication, education, entertainment and clinical applications [2].

There were 3.2 billion smartphone users in 2019 worldwide [3]. India has 696.07 million smartphone users in 2020 that is projected to reach more than 973 million by 2025 [4]. Mobile addiction is a new concern for all age groups, similar to alcoholism or drug abuse. The Smartphone addiction exhibits same withdrawal syndromes such as aggressive behaviour, depression, anxiety, sleeplessness, etc.[5] Phantom ringing, the sensation of ringing of phone when it is not, is among the latest in category of "techno-pathology" to receive global attention. This may be attributed to rising use of smartphones [6].

Smartphone addiction has four main components: compulsive behaviours, tolerance, withdrawal and functional impairment [7].

Adolescents, being immature in self-control, show addictive behaviours readily as compared to adults [8]. This study was planned to estimate prevalence of smartphone addiction and pattern of smartphone usage among school students in Southern Rajasthan.

METHODS

A descriptive cross-sectional study was conducted in January 2018 in Government Senior Secondary School, Vallabhnagar falling under rural field practice area of the department of Community Medicine, Rabindra Nath Tagore Medical College, Udaipur. The study subjects comprised of 143 higher secondary school students.

Inclusion criteria: i) Those present on the day of data collection;

ii) Those willing to give informed consent for the study.

Study tool: A pre-tested Smartphone Addiction Scale- Short Version (SAS-SV) developed by Kwon et al (2010) comprising of ten questions was used [9]. Written informed consent was obtained. The responses for SAS-SV were collected using Likert's 6 point scale where 1 meant strongly disagree and 6 meant strongly agree. The cut-off score for addiction was 31 for males and 33 for girls.

Statistical analysis: Data were analyzed using Microsoft Excel version 2010 and SPSS ver.21. Appropriate tests of significance were applied. p value less than 0.05 was considered statistically significant.

RESULTS

The mean age of study subjects was 17.4± 0.95 years.

Table 1: Distribution of study participants according to socio-demographic profile and pattern of smartphone use (n=142)

Variable	Frequency(n)	Percentage
Age (years)	17.4 ± 0.95 (mean ± S.D.)	
Gender		
Male	81	57
Female	61	43
Stream		
Arts	67	47.18
Commerce	43	30.28
Science	32	22.54
Socio-economic status		
Upper	3	2.11
Middle	109	76.76
Lower	30	21.13
Duration of smartphone use (years)		
0-1	103	72.54
1-3	29	20.42
>3	10	7.04
Duration of smartphone use on a typical day		
<=30 min	70	49.30
31-60 min	32	22.54
1-2 hours	17	11.97
3-4 hours	15	10.56
5-6 hours	5	3.52
>6 hours	3	2.11
Purpose*		
Calling	68	47.9
Academics & information	50	35.2
Music	34	23.9
News	34	23.9
m-health	34	23.9
Entertainment	31	21.8
Messaging	28	19.7
E-mail	20	14.1
Checking phone immediately after getting up in morning	38	26.8

*multiple responses

Table 1 depicts that 57% participants were males and 43% were females. 76.76% subjects belonged to middle socio-economic class.

72.5% respondents started using smartphone within past one year. 49.3% of the subjects used mobile for maximum half an hour a day. Smartphone was used by students for calling (47.9%), academics and information (35.2%), music (23.9%), news (23.9%), mobile health or m- health services (23.9%), entertainment (21.8%), messaging (19.7%) and e-mail (14.1%).

Based on SAS-SV scores, the prevalence of smartphone addiction was 22.54% among students. It was higher in males (28.39%) as compared to females (14.75%). The average duration of daily smartphone usage was 126 minutes.

Table 2: Association of smartphone addiction with socio-demographic profile and pattern of use among study participants

Variable	Addicted students(N=32) n (%)	Non-addicted students(N=110) n (%)	2	df	p value
Gender					
Male	23 (71.9)	58(52.7)	3.71	1	0.05
Female	9(28.1)	52(47.3)			
Stream					
Science	11(34.4)	21(19.1)	3.64	2	0.16
Commerce	7(21.9)	36(31.7)			
Arts	14 (43.8)	53(48.2)			
Socio-economic status					
Upper	2(6.3)	1 (0.9)	6.36	2	0.04
Middle	27 (84.4)	82 (74.5)			
Lower	3 (9.4)	27 (24.5)			
Total duration of smartphone use(years)					
0-1	13(40.6)	90(81.8)	21.13	2	0.00
1-3	14(43.8)	15(13.6)			
>3	5(15.6)	5(4.5)			
Duration of smartphone use on a typical day					
<=30 min	3(9.38)	67(60.91)	38.66	5	0.00
31-60 min	8(25.00)	24(21.82)			
1-2 hours	9(28.13)	8(7.27)			
3-4 hours	7(21.88)	8(7.27)			
5-6 hours	2(6.25)	3(2.73)			
>6 hours	3(9.38)	0(0.00)			
Checking phone immediately after getting up in morning?					
Yes	19 (59.4)	19 (35.8)	4.47	1	0.04
No	13 (40.6)	34 (64.2)			

Smartphone addiction was significantly associated with gender, socio-economic status, total duration of smartphone use and duration of use on typical day. Smartphone addicted students checked their phone immediately after getting up in morning more often than students without addiction. This association was statistically significant. There was no significant association between smartphone addiction and stream of students. (Table 2)

Table 3: Association of gender of study participants with average daily duration of smartphone use and mean SAS-SV Score

	Male	Female	t- value	p value
Mean daily duration of smartphone use	150.56	83.00	2.6	0.011
Mean SAS-SV Score	17.25	11.41	2.28	0.024

Males had significantly higher mean duration of daily smartphone usage and mean SAS-SV scores as compared to females. (Table 3)
The problems reported by students due to smartphone overuse were headache (23.2%), sleep disturbances (19.7%), mood swings (19.7%), watering of eyes (18.3%), phantom ringing (17.6%), dry eyes (11.3%) and state of confusion (10.6%). Family relations were affected among 22.5% subjects.

24.5% (35) students agreed that they were missing planned work and feeling pain in back of neck or wrist while using smartphone.

DISCUSSION

Based on SAS-SV scores, the prevalence of smartphone addiction was 22.54% among students, of which, 16.2% were males and 6.34% were females. Jain et al (2019) reported similar findings in rural Maharashtra where 24.65% of medical students had smartphone addiction. But, they reported high risk of addiction being 7.53% and 17.12% among males and females respectively contrary to our findings [1]. Prasad et al (2017) in Uttar Pradesh and Dixit et al (2010) in Madhya Pradesh found that 24.12% of dental students and 18.5% of medical students had smartphone addiction respectively [10,11]. According to mixed method study by systematic-review and meta-analysis approach, Davey et al (2014) reported that magnitude of smartphone addiction among Indian adolescents ranged from 39% to 45% [12].

Shah et al (2018) in Maharashtra revealed 50% addiction among urban teenagers [8]. Sethuraman et al (2018) found that 85.40% of medical students in Andaman and Nicobar Islands had smart phone addiction [13].

In the current study, males had significantly higher mean SAS-SV scores than females. Similar findings were reported by Mangot et al (2018) in Western India [6].

The present study showed significant association of smartphone addiction with duration of smartphone use on a typical day. Similar results were observed by Jain et al (2019) in Rural Maharashtra [1] and Cha et al (2018) in Korea [14].
The problems reported by students due to smartphone overuse were pain in back of neck or wrist (24.5%), sleep disturbances (19.7%), phantom ringing (17.6%), dry eyes (11.3%) and state of confusion (10.6%). These observations were consistent with a study by Cha et al (2018) in Korea where middle school students had pain in neck, wrist or back (29.4%), sleep disturbances (31.7%), dry eyes (30.2%) and digital dementia (22.5%) [14]. Mangot et al (2018) reported higher prevalence of phantom ringing (42%) in western India than our study [6].
Family relations were affected among 22.5% subjects in the current study. Similarly, Cha et al (2018) found that 19.5% students were dissatisfied with interpersonal relations in Korea [14].

Smartphone use is like a double edged sword with multiple benefits as well as harms. It must be used judiciously to avoid addiction and associated morbidities. This will ensure the physical, mental and social well- being of the most vulnerable group, i.e. students.

CONCLUSION

The prevalence of smartphone addiction was 22.54% among students. Smartphone addiction was significantly associated with gender, socio-economic status, total duration of smartphone use and duration of use on a typical day. Information, education and communication activities need to be strengthened to generate awareness regarding judicious use of smartphones among students.

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