PROBLEMATIC USE OF SMARTPHONE AND NOMOPHOBIA AMONG MEDICAL AND NURSING UNDERGRADUATE STUDENTS OF A TERTIARY CARE REFERRAL HOSPITAL IN INDIA AND ITS ASSOCIATION WITH QUALITY OF LIFE: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Summary

Background: *Overuse of smartphone amongst today's young generation has assumed an epidemic proportion. Assessment of severity of Nomophobia and Smartphone use related problems is important as it can help to ascertain the current adverse consequences of Smartphone problematic use. The study aims to assess the association between smartphone dependence, nomophobia and quality of life in undergraduate medical and nursing students in a tertiary care referral hospital cum medical institution in India.*

Subjects and Methods: *This cross-sectional study involved 437 medical and nursing undergraduate students, which involved assessing their dependence for smartphone and nomophobia using the Test for Mobile Phone dependence (TMD) questionnaire brief version and Nomophobia Questionnaire (NMP-Q) respectively.*

Results: *The average hours spent on smartphone per day for the study population was 3.2 hours. Smartphone dependence was found in 12% of study participants. Nearly 50% in each batch had moderate degree of nomophobia and around 13-15% had severe nomophobia. Both smartphone dependence and nomophobia were significantly associated with each other and had significant associations with poorer quality of life in the medical and nursing students. Preclinical medical students scored higher in all the domains of Smartphone dependence and nomophobia questionnaire and were associated with poor quality of life compared to other batches.*

Conclusion: *Excessive smartphone use is associated with poorer quality of life in medical and nursing students. More studies in future are required that will involve various age groups and other educational streams which will add up to the existing knowledge on technology addiction.*

Keywords: *Behavioural addiction, medical undergraduates, Nomophobia, Quality of life, Smartphone use, Smartphone dependence.*

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INTRODUCTION

A smartphone is an intelligent, multifunctional device that provides integrated communication, entertainment and information services that makes it attractive to all age groups (Chóliz et al. 2016). Mobile broadband technology allows for the operation of instant messaging systems which are frequently preferred by young people. Overuse of these can promote dysfunction due to the development of dependence and thus the negative physical and psychological consequences are associated with its excessive use (Bianchi & Phillips 2005, Bragazzi & Del Puente 2014).

Previous research have shown the emergence of behavioural addiction and their apparent equivalence to substance dependence (Aggarwal et al. 2012, Lemon 2002). Behavioural addiction for smartphones has been variously termed as 'Mobile phone dependence', 'Mobile phone problematic use', 'Mobile phone abuse' and 'Nomophobia' (a short form for "no mobile phone" and phobia which is defined as fear of without having own Smartphone) (King et al. 2014, Lopez-Fernandez et al. 2014; Bhatia 2008). The symptoms include preoccupation with the device, excessive use with loss of control, use in socially inappropriate/dangerous situations, adverse effects on relationships, withdrawal (e.g. feelings of anger, tension, sadness when the phone/network is inaccessible, constant worry that battery will drain and craving), tolerance (e.g. need for new better phone, more software or more hours of use), and functional impairments (e.g. lying, arguments, poor achievements, social isolation etc). These being akin to substance dependence

syndrome, researchers argue that it's better to consider mobile phone dependence (MPD) as a diagnostic entity (Toda & Ezoe 2013). Many diagnostic criteria of mobile phone addiction have been developed worldwide and studies show that there is a significant relationship between test scores generated and the main parameters of smart phones dependence (Basu et al. 2012, Güzeller & Coşguner 2012, Leung 2008, Toda et al. 2006).

Studies show that young adults especially college students are far more likely to become dependent on smart phones as compared to adults thus interfering with their academic and personal activities, leading to social and relationship problems. There has been an upward swing in the younger age groups with increasing trend of use of mobile phones among college students (Szpakow et al. 2011, Chóliz 2010a, Kawasaki 2006, Sahin et al. 2013).

Various studies on internet addiction have already been conducted both in India and abroad and studies focussing on medical students in India are also not less (Arif & Aslam 2014, American Psychiatric Association 2017, Dalal & Basu 2016, Nathan et al. 2016, Sachdeva & Verma 2015, Krishnamurthy & Chetlapalli 2015, Gedam et al. 2016, Nath et al. 2016, Chaudhari et al. 2015, Balhara et al. 2015). Indian studies conducted in adults have identified mobile phone behavioural addiction as ranging from 33.5% to 39.6% using International Classification of Disease, 10th edition (ICD-10) Classification of Mental and Behavioural Disorders criteria for dependence syndrome (Aggarwal et al. 2012, Basu et al. 2012). We found only one study related to quality of life, which found that smartphone use and addiction led to more of depressive symptoms and both significantly affected neuroticism and quality of life (Gao et al. 2017). With respect to nomophobia, a recent study on dental undergraduate students by Prasad et al. (2017) showed increased duration of smartphone use to be inversely related to the marks that they got in their professional examinations. The study showed around 24% students to be nomophobic and 41% to be at risk of developing it. A statistically significant difference was found among preclinical, clinical, interns and postgraduates regarding the usage and effect of mobile phone on them (Prasad et al. 2017). A comparative study between medical and engineering students by Dasgupta et al., (2017) showed a higher proportion of nomophobics (44.6%) among engineering students than medical students (42.6%) though it was not statistically significant. Significant higher means was observed among engineering students for the factor "giving up convenience" and individual variables like "scared due to running out of battery," "nervous due to disconnection from online identity", "uncomfortable when unable to stay up-to-date with social media"

and "anxious when unable to check e-mails." A higher proportion of nomophobics among both groups were females who owned smartphone beyond 2 years, having monthly phone bill above INR 200 and spending over 4 hours/day on smartphone (Dasgupta et al. 2017). Overuse and not letting go one's smartphone should also be taken from a different perspective as reported by King et al. (2010) where a panic disorder patient was reported to be keeping his phone always with him because of a need to feel safe when emergency situations arises. Treatment resolved his panic symptoms but not so much improvement was noted in his nomophobia (King et al. 2010).

The dearth of studies on smartphone use and nomophobia and their associations with quality of life in Indian context and more so in medical students, has contributed to little knowledge in this type of behavioural addiction. This study thus aims to assess extent of use of smart phone and the degree of nomophobia with validated instrument in medical and nursing students and its association with quality of life.

SUBJECTS AND METHODS

This work is a part of Indian council of medical research (ICMR) short term studentship (STS) project (Ref no. 2017-02898). This cross-sectional observational study was done on undergraduate (UG) medical and nursing students (all the batches) of the institute in their respective lecture rooms after obtaining ethical clearance from the Institute Ethics Committee. Data was collected both by face-to-face assessment and through email. The second mode was employed only when the students were unavailable in their classroom. First year to final year Medical and Nursing students who had smartphones were included in the study. The sampling of the population was purposive and was done after exclusion of those who didn't meet our inclusion criteria. The only exclusion criteria were unwillingness to participate in the study and absence of a smartphone. Individuals who consented for the study were recruited.

They were assessed for demographic and smart phone use related clinical data using a semi structured questionnaire which captured details like age, gender, living arrangement, and duration of smart phone use per day and years of mobile phone usage. Extent of smartphone use was assessed using Test for Mobile Phone dependence (TMD) questionnaire brief version (Chóliz et al. 2016) and degree of nomophobia was assessed with Nomophobia Questionnaire (NMP-Q), the severity of which was based upon the scores obtained [less than 20 (absent),

21-59 (mild nomophobia), 60-99 (moderate nomophobia), 100-140 (severe nomophobia)] (Yildirim & Correia 2015). Quality of life was measured using World Health Organization Quality of Life Bref (WHOQOL Bref) (Saxena et al. 1998).

All the information was gathered in a single sitting. A total of 460 students were recruited to complete the assessment as per inclusion and exclusion criteria. The assessment could not be completed in 23 participants as they had declined to give back the case study form and withdrew from the study. The instruments (TMD and NMP-Q) used in this study are all validated to be used in Indian context and have good reliability and internal consistency (Chóliz et al. 2016; Kumar et al. 2021). Data collected were analyzed focusing on quantifying the extent of use of smart phone, associated nomophobia and its consequences in the study population. The relationship of extent of smart phone use with the quality of life was evaluated by independent t test, chi-square and ANOVA depending upon the variables. A sub-group analysis was conducted to compare the levels of smart phone use among participants (i.e. among Medical vs nursing students), and it was computed for association with quality of life. All the tests were two tailed and a p value of less than 0.05 was considered significant.

RESULTS

Socio-demographic and clinical parameters

The average age of our population was 20.01±1.79 years (Range=17-25) with 61.10% and 38.90% of the responders being respectively males and females ((M: F /3:2). There were mostly equal numbers of responders from the four batches of undergraduate medical students (21.05%, 21.51%, 21.73% and 21.28% respectively from MBBS (Bachelor of Medicine and Bachelor of Surgery) admission batches 2013- 2016 i.e. 1st year preclinical (denoted as MBBS'16 for MBBS 2016 batch), 2nd year paraclinical (denoted as MBBS'15 for MBBS 2015 batch), 3rd year part 1 clinical (denoted as MBBS'14 for MBBS 2014 batch) and 3rd year part 2 clinical (denoted as MBBS'13 for MBBS 2013 batch), while nursing students from three admission batches (2014, 2015 and 2016) were respectively 5.94%, 1.83% and 6.63% (total 14.4%) (Table 1). The clinical variables that tried to assess the various parameters and domains of smartphone use amongst the medical and nursing students (combined) are duration of its use, number of times smartphone is checked in a day, frequency of checking/using the phone, average number of instant messages sent and received per day and lastly

the number of applications (apps) they use in their phone. The various results of these clinical smartphone use related factors are given in table 1. The average hours spent on smart phone per day for the study population was 3.2 hours. Over three fourth of the students check their smartphone up to 30 times per day. Over 50% study subjects check their smart phone every 20 minutes to every hour. It was observed that nearly 30% study subjects sent more than 50 instant messages per day. It was seen that over 40% study subjects received up to 50 instant messages per day and 10% of participants received 300 or more messages per day. Over 60% of our study population had up to 30 apps in their smartphones.

Smartphone dependence

In this present study, 12% of participants have certain chance of Smartphone dependence, as they were found to be above cut-off (35) value for test for mobile phone dependence. It was observed that the total mean score for severity of mobile dependence for the study population was 24.1 with a highest score for MBBS'16 1st year preclinical batch (25.3) and lowest for MBBS'14 3rd year part 1 clinical batch (23.3) (Figure 1). Factor/domain analysis of the items of TMD depicted a similar factor wise distribution pattern with respect to TMD-Brief for MBBS versus Nursing Batches (Figure 2). Among four factors for Smartphone dependence, abstinence factor was found to be highest responsible for mobile dependence in study population. Preclinical (MBBS'16) medical students need special care related to smartphone use as they scored almost higher value in all the domains of Smartphone dependence questionnaire compared to other batches.

Nomophobia

A common trend was seen with respect to severity of nomophobia (as measured by NMP-Q) in all subsets of the scale. Nearly 50% or more across each MBBS/ Nursing batch lies in severity grade 3 (Moderate Nomophobia) range as per NMPQ. On the other hand, 10% to 17% were found to fall in Severity grade 4 (Severe Nomophobia) across MBBS and nursing batches (figure 3). Batch wise analysis resulted in MBBS'13 3rd year part 2 clinical batch (46.7%), MBBS'14 3rd year part 1 clinical batch (53.1%), MBBS'15 2nd year paraclinical batch (58.9%), MBBS'16 1st year preclinical batch (67.7%), and Nursing (49.2%), lie in severity grade 3 (Moderate nomophobia). On the other hand, 13.0%, 9.5%, 13.6%, 15.0% and 17.4% of undergraduate students in MBBS'13 3rd year part 2 clinical batch, MBBS'14 3rd year part 1 clinical

Table 1 Socio-demographic and clinical variables of the study population (medical and nursing students)

|	Variables	Frequency distribution (%)
Gender	Male	61.10
	Female	38.90
Medical and nursing students (batch wise)	MBBS 1st year preclinical batch	21.28
	MBBS 2nd year paraclinical batch	21.73
	MBBS 3rd year part-1 clinical batch	21.51
	MBBS 3rd year part-2 clinical batch	21.05
	Nursing	14.4
Duration of smartphone use	For less than 1 year	17.62
	1 year to less than 2 years	16.93
	2 years to less than 3 years	21.74
	3 years to less than 4 years	19.68
	4 years to less than 5 years	14.42
	5 years and more	9.62
Number of times smartphone checked per day	<10	24.71
	10-29	51.72
	30-49	8.70
	50-69	8.47
	70-89	1.60
	90-109	2.97
	>110	1.83
Frequency of checking smartphone	Every 5 mins	4.12
	Every 10 mins	8.24
	Every 20 mins	13.50
	Every 30 mins	14.87
	Every 1 hour (60 mins)	25.86
	Every 2 hours (120 mins)	13.27
	Every 3 hours (180 mins)	10.53
	Variable frequency	9.61
Average number of instant messaging sent per day	<10	32.95
	10-19	17.16
	20-29	12.13
	30-39	3.89
	40-49	3.66
	>50	30.21
Average number of instant messaging received per day	<50	41.19
	50-99	14.65
	100-199	23.11
	200-299	10.76
	>300	10.30
Number of apps in smartphone	<10	16.25
	11-20	31.81
	21-30	15.33
	31-40	8.24
	41-50	10.53
	>50	17.85

Note: MBBS: Bachelor of Medicine and Bachelor of Surgery

Figure 1: TMD-Brief (Mean total score): Severity Pattern among MBBS Batches (including gender-wise distribution as a whole) and Nursing (n=437)

TMD Brief: Mean Total Score(N=437)
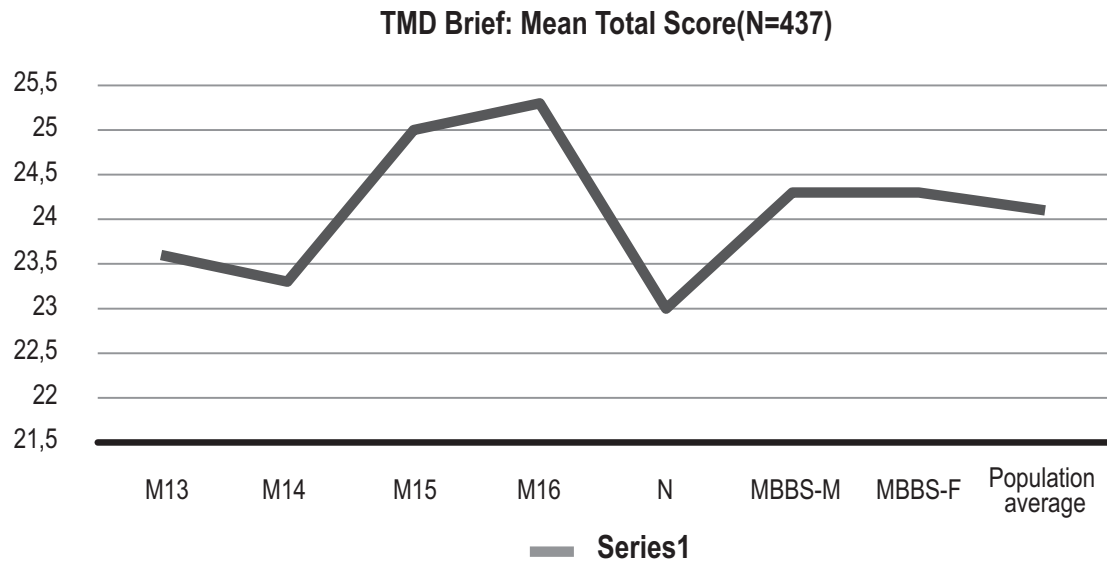
Note: TMD: Test for Mobile Phone Dependence Questionnaire; M13: MBBS 2013 batch; M14: MBBS 2014 batch; M15: MBBS 2015 batch; M16: MBBS 2016 batch; N: Nursing; MBBS-M: MBBS Male students; MBBS-F: MBBS Female students

Figure 2: TMD-Brief (Factors): Severity Pattern among MBBS Batches vs Nursing students (n=437)
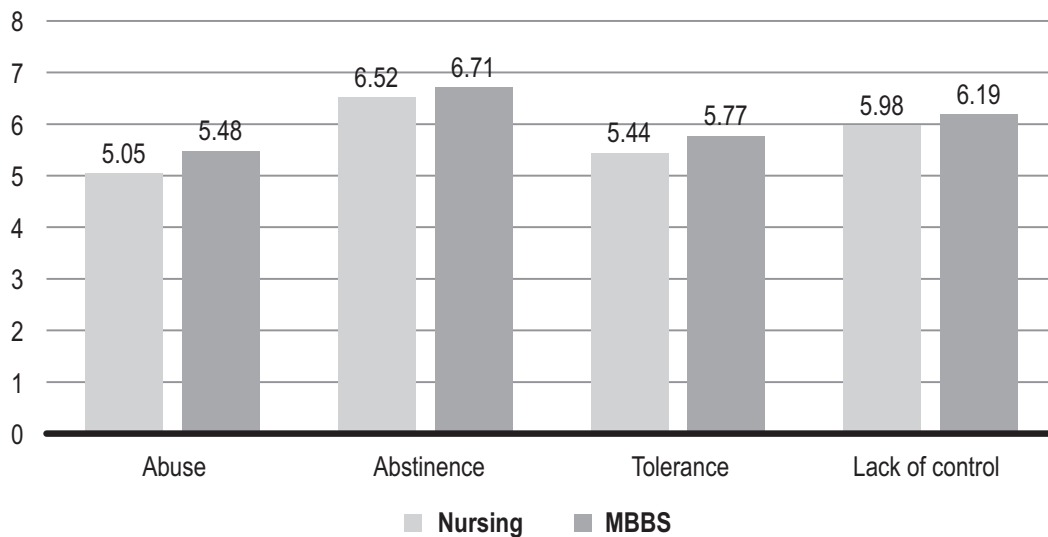

Note: TMD-Test for Mobile Phone Dependence Questionnaire Score

batch, MBBS'15 2nd year paraclinical batch, MBBS'16 1st year preclinical batch and Nursing batch respectively were found to fall in Severity grade 3 (Severe nomophobia). There is thus no difference in severity pattern among MB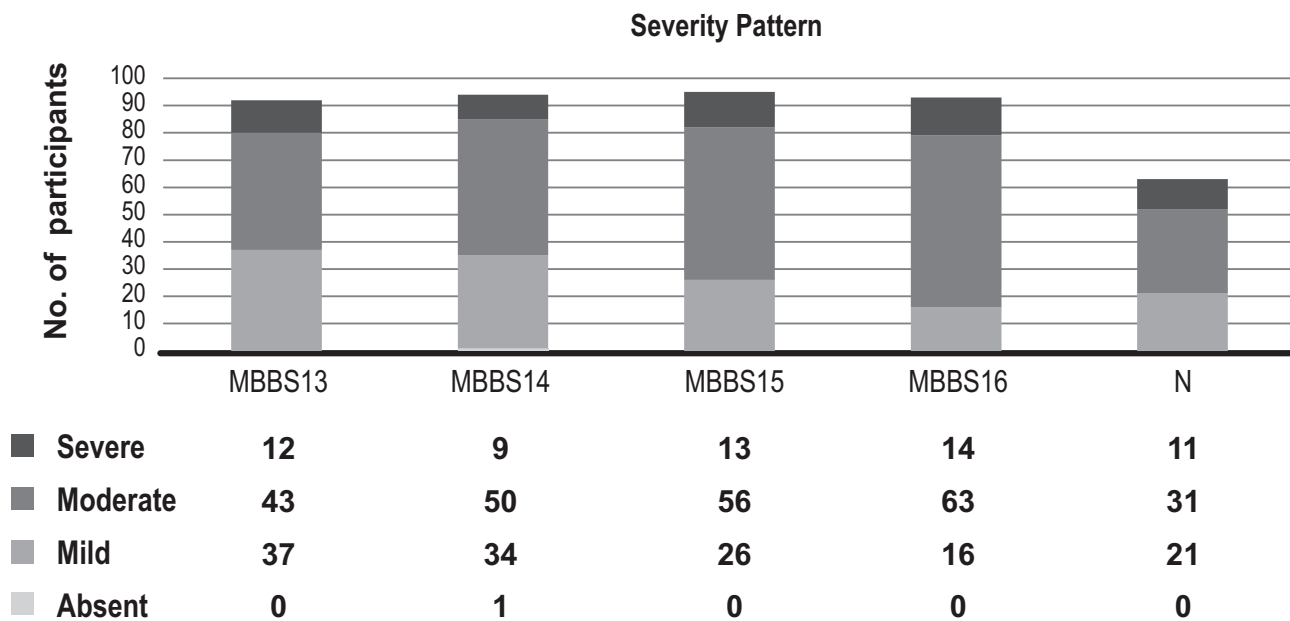BS and Nursing students (figure 4). When factors for the scale were separately assessed for MBBS and nursing students, the following trend could be found. For MBBS'16 (Preclinical) batch, giving up smart phone use is equivalent to giving up the convenience of life, difficulties in almost all domains or factors of Nomophobia.

**Figure 3:** NMPQ: Severity Pattern among MBBS Batches vs Nursing students (n=437)
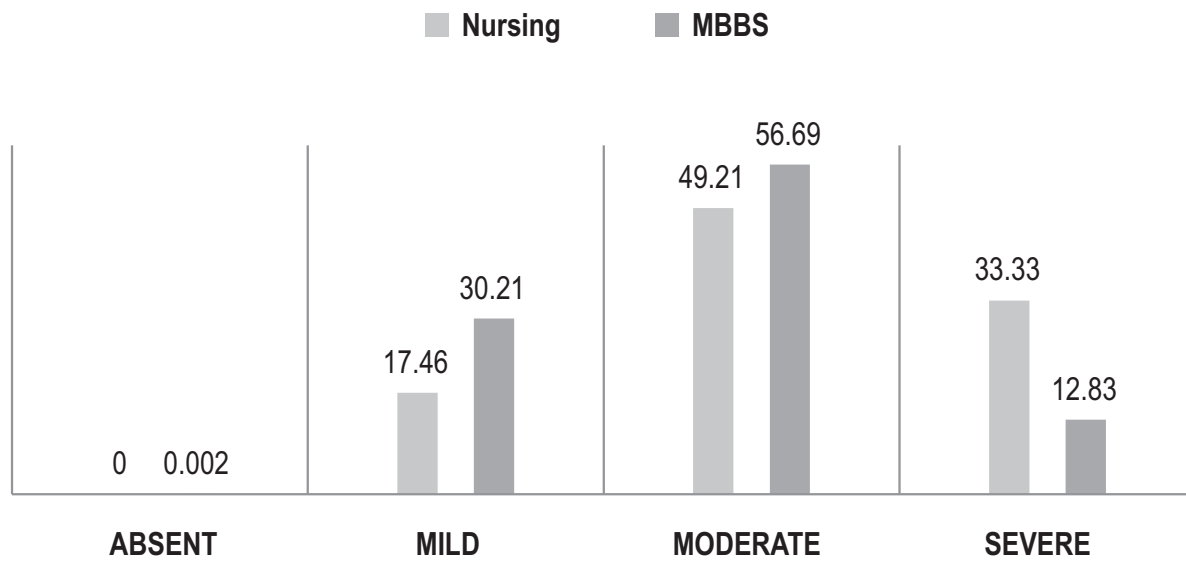
Note: NMPQ- Nomophobia Questionnaire Score

Figure 4: NMPQ: Severity Pattern among MBBS Batches and Nursing students (n=437)

	MBBS13	MBBS14	MBBS15	MBBS16	N
Severe	12	9	13	14	11
Moderate	43	50	56	63	31
Mild	37	34	26	16	21
Absent	0	1	0	0	0

Note: NMPQ: Nomophobia Questionnaire Score, MBBS13: MBBS 2013 batch; MBBS14: MBBS 2014 batch; MBBS15: MBBS 2015 batch; MBBS16: MBBS 2016 batch; N: Nursing.

Figure 5: WHOQOL BREF: Overall perception of quality of life (n=437)

Overall perception of QOL

	M13	M14	M15	M16	N	Population average
Series1	3.59	3.75	3.73	3.43	3.63	3.63
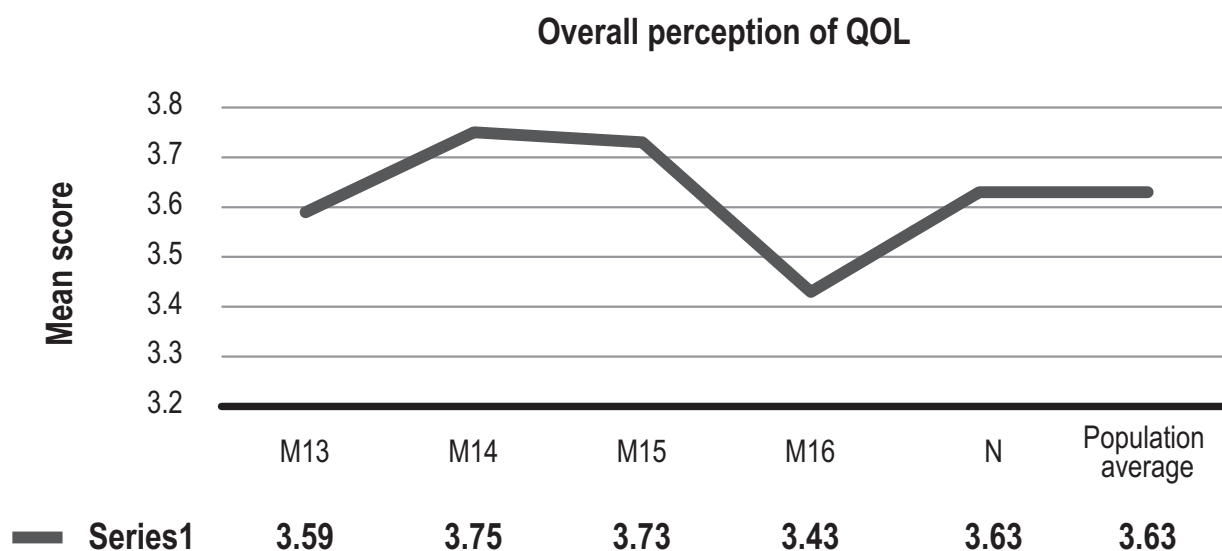
Note: WHOQOL BREF: World Health Organization Quality of Life Bref; M13: MBBS 2013 batch; M14: MBBS 2014 batch; M15: MBBS 2015 batch; M16: MBBS 2016 batch; N: Nursing.

Quality of life (QoL)

Significant difference between male and female WHO-QOL BREF mean score for physical (P=0.026) and psychological (P=0.031) domains has been found but not with other domains like social relationship (P=0.390) or environment (P=0.159) nor to the total mean score (P=0.094). The total mean score for every MBBS Batch (with MBBS 3rd year paraclinical batch having the highest score, indicating best QoL) was higher than that of nursing indicating better quality of life in the former. The domain analysis for WHO-QoL amongst the MBBS and nursing students revealed subtle differences with nursing batch scoring more (statistically insignificant) than each of the MBBS batches in all the domains of the scale. The overall perception of QoL was found to be the least in MBBS'16 1st year preclinical batch (3.43) while that of the other batches and the nursing students were more or less similar (Figure 5). With respect to overall perception of health (population average 3.47), nursing batch fared better than several MBBS batches (preclinical, paraclinical and 3rd year part 2 clinical). The overall perception of health was lowest for MBBS'16 1st year preclinical batch (3.31) and highest for MBBS'13 3rd year part 2 clinical batch (3.55).

Associations between various clinical domains (smartphone dependence, nomophobia severity and Qol including their various domains)

Significant associations were found between scores of smartphone dependence and severity of nomophobia (P=0.000) along with the mean QoL (P=0.012) and all the domains of WHO-Qol Bref except the environmental domain (table 2). With regards to the various smartphone use related clinical parameters, dependence on use is found to be significantly associated with total duration of smartphone use (P=0.020), hours of use per day (P=0.000) and time interval between usage (P=0.009) but not significantly with number of times of smartphone use and to the number of instant messages sent or received (Table 2).

When nomophobia severity is taken into consideration, it has been found to be in significant associations with all the domains of QoL (P=0.000) and also to the time interval between usage (P=0.017) and number of instant messages sent per day (P=0.050) but not to the total usage duration, hours of usage per day, number of times of usage and to the number of messages sent per day (Table 2).

Table 2: Association between smartphone dependence, nomophobia severity and quality of life
'p' value significant at < 0.05)

Sl. no.	Variable	Variable	p-value
1	TMD Brief	NMPQ severity	0.000*
2	TMD Brief	Overall perception of QOL	0.061
3	TMD Brief	Overall perception of Health	0.603
4	TMD Brief	Total mean score WHOQOL BREF	0.012*
5	TMD Brief	Physical Domain WHOQOL BREF	0.028*
6	TMD Brief	Psychological Domain WHOQOL BREF	0.002*
7	TMD Brief	Social Domain WHOQOL BREF	0.011*
8	TMD Brief	Environment Domain WHOQOL BREF	0.340
7	NMPQ severity	Overall perception of QOL	0.006*
8	NMPQ severity	Overall perception of health	0.488
9	NMPQ severity	Total mean score WHOQOL BREF	0.000*
10	NMPQ severity	Physical Domain WHOQOL BREF	0.000*
11	NMPQ severity	Psychological Domain WHOQOL BREF	0.000*
12	NMPQ severity	Social Domain WHOQOL BREF	0.000*
13	NMPQ severity	Environment Domain WHOQOL BREF	0.000*
14	TMD Brief	Duration of Smart phone use	0.020*
15	TMD Brief	No. of hours spent on smart phone per day	0.000*
16	TMD Brief	No. of times per day of checking the smart phone	0.554
17	TMD Brief	How often do they check smart phone	0.009*
18	TMD Brief	No. of Whatsapp messages sent per day	0.259
19	TMD Brief	No. of Whatsapp messages received per day	0.611
20	Severity NMP	Duration of Smart phone use	0.233
21	Severity NMP	No. of hours spent on smart phone per day	0.231
22	Severity NMP	No. of times per day of checking the smart phone	0.153
23	Severity NMP	How often do they check smart phone	0.017*
24	Severity NMP	No. of Whatsapp messages sent per day	0.420
25	Severity NMP	No. of Whatsapp messages received per day	0.050*

*p <0.05 for significance.
Note: TMD- Test for Mobile Phone Dependence Questionnaire
NMPQ- Nomophobia Questionnaire

DISCUSSION

The domain of behavioural dependence is not a new entity in the field of addiction medicine. Researchers have tried to unravel the complexities of excessive behaviour and its dependence across a wide range of human behaviours. Smartphone dependence and nomophobia is one of them which has been attempted to be assessed in this index study. The mean age of the population was 20.01 years (SD 1.79) which can be easily understood since medical and nursing undergraduation normally takes place between an age range of 18-24 years approximately. 61.10% of our population was males and the rest were females in the study population which can be representative of the actual gender differences in the undergraduate batches. The representation from nursing students were less than each of the MBBS batches because the yearly admission intake for nursing students is lesser in comparison to the medical undergraduates in this institution.

Severity of smartphone dependence was found to be highest in MBBS' 16 1st year preclinical batch and lowest in MBBS' 14 3rd year part 1 clinical batch in our study. This difference can be attributed to the fact that during the

time of data collection, MBBS' 14 batch students were in their final year clinical period which is considered tougher than other previous periods thus contributing to lesser smartphone use while MBBS' 16 batch just had their 1st professional examinations over, giving them ample time to use their mobile phone. The index study is a questionnaire-based study without any actual face-to-face interview with the study participants. This is a limitation in this study and thus its difficult to interpret whether the above finding has any actual clinical significance.

Nearly 50% or more in each MBBS batch, with highest among MBBS' 16 (67.7%) (preclinical) and the lowest in MBBS' 13 batch (46.7%) (clinical) have moderate nomophobia severity while around 13% to 15% of the MBBS batches and nursing batch (highest) had severe degree of nomophobia. There is no significant difference in severity pattern among MBBS and Nursing students. Factor analysis of nomophobia also did not show any significant differences between the MBBS and nursing students. A relatively higher degree of nomophobia was also found in the preclinical medical batch (32.6%) in a study that tried to assess nomophobia in dental UG students (Prasad et al. 2017). Dixit et al. (2010) in his study that compared non-clinical, preclinical, paraclinical and clinical undergraduate students found that severe nomophobia was maximum from 3rd professional part – 1 but moderate degree of nomophobia was maximum from the 1st professional students as like ours (Dixit et al. 2010). Another study conducted by Ramadu et al. in 2015 revealed a slightly different picture. The students having nomophobia were maximum from interns (34.28%) and minimum for 2nd year (14%), which signifies duration of smartphone use is related to degree of nomophobia like previous and our study (Ramudu et al. 2015). Not only medical students, mobile phone dependence and nomophobia is also widely seen in engineering students and sometimes the severity of it appears to surpass that of medical undergraduate students (Dasgupta et al. 2017).

With respect to effect on quality of life (QoL), significant gender differences with respect to physical and psychological domains of WHOQOL BREF have been found. The overall perception of QoL was found to be the most affected in MBBS'16 batch (preclinical) while that of the other batches and the nursing students were more or less similar. The overall perception of health was also most affected in the MBBS' 16 batch. These findings can be correlated, as preclinical batch has more number of nomophobes and problematic use of smartphone user in our study. A significant association between smartphone dependence, nomophobia and poor quality of life has been found in this current study. The association between excessive mobile phone usage and poor lifestyle habits

(including substance abuse) was also shown earlier (Sánchez-Martínez & Otero 2009) though a study by Toda and Esoe (2013) on medical students found no such association (Toda & Ezoe 2013).

The current study tried to assess the extent of smartphone dependence and nomophobia among medical and nursing undergraduate students which is a problematic behaviour among youth these days. This is probably the first study which has looked for an association between degree of nomophobia and quality of life in Indian population and especially amongst medical and nursing students. Though the current nosological status of smartphone dependence and nomophobia is dubious, its resemblance to addiction disorders and the degree of hindrance to a productive life might pave a way for its inclusion into the rubric of mainstream addictive disorders. Till then we need many more studies involving various age groups that will give us collective data for its psychiatric significance to gain momentum.

Present study has many limitations. Some of the study participants might have socially desirable answers. The current study involved a cross-sectional model with purposive sampling which might have been better dealt with proper randomization and a longitudinal approach that could have targeted long term consequences of smartphone dependence. The current study involved only medical and nursing students from a single center. This questions generalizability of the study findings to other centers. Also, the index study didn't assess mood and anxiety symptoms as well as substance use disorder in the participants. Incorporating them could have provided insights into how smartphone dependence and nomophobia impinges on the psychological apparatus of the participants and how they are associated with substance use pattern in them, if any. A comparison with other branches (engineering etc) could have given a good picture giving robust comparative data that would have helped in fixing target population for active intervention. Smartphones are often used by many as a substitute for their desktop/laptop at work. Also, many instant messages received are actually bulk messages which may be work/ study related. These factors were not looked for in the study while we assessed data pertaining to them from the participants. Another important limitation is the questionnaire-based study model that we have formulated to tap behavioural dependence. Such a method has its own limitation in assessing actual behavioural dependence as like smartphone dependence and nomophobia in our case. A qualitative approach could have been a better method here. Nevertheless, this study at least attempted to provide some picture about the gravity of technology and gadget addiction which will prompt future studies.

CONCLUSION

Behavioural addiction like that of excessive smartphone use has been the topic of interest for psychiatrists worldwide owing to its similarity with substance of abuse and its impact on individual and society at large. Excessive smartphone use is associated with poorer quality of life in medical and nursing students. More studies in future are required that will involve various age groups and other educational streams which will add up to the existing knowledge on technology addiction.

Ethical Considerations: Does this study include human subjects? YES Authors confirmed the compliance with all relevant ethical regulations.
Conflict of interest: No conflict of interest

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