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Pattern of WhatsApp and Facebook usage and its impact on sleep quality among nursing students in Pondicherry

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ABSTRACT

Background: Usage of social networking sites like WhatsApp and Facebook in smartphones has become a basic necessity in today's life, especially among college students. However, the excess usage of mobile phone affects sleep quality and attention span. Nursing students are prone to sleep disturbance due to their academics and work pattern. The aim of the study was to assess the pattern of WhatsApp and Facebook usage among nursing students and its impact on their sleep quality.

Methods: A cross-sectional study was conducted among 168 nursing students of a nursing college in Puducherry. Participants were explained about the purpose of study and written informed consent was obtained. Data was collected using a self-administered questionnaire. Sleep quality was assessed using PSQI scale. Institutional ethics committee approval was obtained for the study. The data was entered in Microsoft Excel and analyzed using STATA 14.

Results: Among the study participants, most of them prefer WhatsApp over Facebook. Almost 40% of the students had poor quality of sleep. There was statistically significant association between usage of WhatsApp while feeling sleepy, while having food and poor quality of sleep. However, the adjusted prevalence ratio of poor sleep quality did not show statistical significance.

Conclusions: The current study showed statistical significance between certain pattern of WhatsApp usage leading to poor sleep quality among nursing students. Thus, corrective measures have to be implemented to moderate the mobile phone usage and improve the sleep quality of nursing students.

Keywords: WhatsApp, Sleep quality, Social media, Smartphone

INTRODUCTION

Social media is a term used to describe the interaction between groups or individuals in which they produce, share, and sometimes exchange ideas, images, videos and other content over the internet and in virtual communities.¹ Social networking sites are easy to learn, cheaper, convenient, reliable, entertaining, and can be accessed anywhere.² Among the various social media platforms,

Facebook and WhatsApp are the two most common applications used by today's younger generation in India. Also, with the growing market of smartphone industry and easy availability of mobile phones, the younger generation even in remote rural areas are using WhatsApp and Facebook. In India, the growth in number of mobile phone users has been rapid and has permeated all segments of society, especially the young.³

In a student's life, WhatsApp and Facebook makes them socialized, provides an effective means to share information facilitating the flow of knowledge and to stay updated. However, it affects the learning and researching capabilities, cause lack of attention while studying, is time consuming and it leads to a lack of motivation and poor self-care. Also, the duration and timing of usage of WhatsApp and Facebook by the students has deleterious effect on their concentration level and the sleep quality.

Good quality and adequate amount of sleep are important in order to have better cognitive performance, academic performance and avoid health problems and psychiatric disorders.⁴ Attention and concentration difficulties were linked to poor sleep quality among students as good sleep is essential for the best of physical and mental health.⁵ Poor sleep quality may lead to poor quality of life and emotional imbalances.⁶ Evidences are available indicating that medical students are more susceptible to sleep problems as compared with non-medical students due to more demanding academic program, clinical duties, emotionally demanding work including night duties which has adverse impact upon their sleep pattern.⁷

There are few studies which has evaluated the sleep hygiene of nursing students which has been influenced by various factors including sociodemographic and lifestyle factors. However, studies to identify the influence of social networking sites like WhatsApp and Facebook upon the sleep quality of nursing students has not been done. Due to the paucity of data on influence of social media usage upon the sleep quality of nursing students, this study was planned and conducted. The main objective of this study was to find out the pattern of WhatsApp and Facebook usage among the nursing students and its impact on their sleep quality.

METHODS

The current study was a cross-sectional study conducted among B.Sc and M.Sc nursing students of College of Nursing, Pondicherry Institute of Medical Sciences. The study was conducted between June 2019 to September 2019. There are total 227 nursing students including both B.Sc and M.Sc courses in the college of Nursing out of which 168 students were available and gave consent to participate in the study. A self-reported anonymous pre-tested questionnaire was administered to the study participants for data collection. The study parameters included were socio demographic details, type of mobile phones used, usage of internet in mobile phones, pattern of WhatsApp and Facebook usage and sleep quality. The quality of sleep was assessed using the validated Pittsburgh sleep quality index questionnaire.⁸ The PSQI scale includes 19 individual items categorized into 7 components including subjective sleep quality, sleep latency (i.e., how long it takes to fall asleep), sleep duration, habitual sleep efficiency (i.e., the percentage of time in bed that one is asleep), sleep disturbances, use of sleeping medication, and daytime dysfunction. The scores from the individual items were compiled to get a global

score, which gives the assessment of the Sleep quality. The collected data was entered in Microsoft Excel. Descriptive statistics was used to describe the sociodemographic details of the participants. Analysis of variance/Kruskal Wallis test was used to study the effect of WhatsApp and Facebook usage upon sleep pattern. Prevalence ratio (PR) and adjusted prevalence ratio (aPR) were calculated using STATA 14. Ethical clearance was obtained from the Institutional Ethics Committee. Written approval was taken from the Dean, College of Nursing prior to the study. Participation information sheet was given and written informed consent obtained from the participants prior to the study.

RESULTS

Out of the 168 participants who responded, majority were female (86.3%) and residing in the college hostel (67.3%). Among the study participants, only 125 (74.4%) participants are currently using Facebook, although WhatsApp is being used by all participants. Among the 168 study participants, about 41% of had poor quality of sleep having 5 or more score in PSQI scale (Table 1). Half of the participants (49.4%) check their WhatsApp as the first activity of the day after waking up in morning. About 32% of study participants check their WhatsApp at least once within an hour. Most of the respondents (73.2%) are members of up to five WhatsApp groups. Among the students, about 18% of them responded that more than half of the daily messages sent by them in WhatsApp are forwarded messages. About 25% of the study participants change their WhatsApp profile picture at least thrice a week. Among the 125 study participants who are using Facebook, never play games in Facebook (83%) and rarely watch videos in Facebook (56%). Among the Facebook users in the participants, about 78% of them use Facebook for at least 1 hour per day (Table 2).

Among the study participants, 19% of them keep their mobile internet switched on for more than 10 hours everyday whereas 22% of them keep internet on for 5-10 hours a day. Most of the participants (84%) have maximum usage of WhatsApp/Facebook in evening hours between 6 PM to 10 PM. About 20% of study participants have a feeling that they are addicted to social media platform like WhatsApp or Facebook.

It was found out that the prevalence of poor sleep was two times higher among the students who use WhatsApp when feeling sleepy (Table 3). The students who checked WhatsApp for any message frequently (at least once in an hour) also reported higher prevalence of poor sleep (1.7 times higher prevalence) as compared to students who did not check WhatsApp frequently. The effect of using WhatsApp while having food on sleep quality was also found statistically significant. However, the adjusted Prevalence ratio did not show any statistical significance between the usage of WhatsApp and sleep quality. The prevalence ratio of poor sleep quality was 5 times higher among the first-year students as compared to the final year nursing students.

Table 1: Pattern of WhatsApp usage and sleep quality among the nursing students (n=168).

Parameters	Frequency	Percentage (%)
Age when started using WhatsApp (years)		
11-14	4	2.4
15-18	99	58.9
>18	65	38.7
Average daily usage of WhatsApp		
30-60 minutes	64	38.1
1-2 hours	36	21.4
2-4 hours	37	22.0
>4 hours	31	18.5
Frequency of putting 'status' in WhatsApp		
Daily	75	44.6
Weekly	36	21.4
Rarely	57	34.0
Timing of maximum usage of WhatsApp/Facebook		
6 AM to 6 PM	14	8.4
6 PM to 10 PM	141	84.4
10 PM to 6 AM	12	7.2
Sleep quality as per PSQI scale		
Good quality (PSQI score 4 or less)	100	59.5
Poor quality (PSQI score 5 or more)	68	40.5

Table 2: Pattern of Facebook usage among the nursing students (n=125).

Parameters	Frequency	Percentage (%)
Age when started using Facebook (years)		
11-14	18	14.4
15-18	56	44.8
>18	51	40.8
Daily Facebook usage		
30-60 minutes	98	78.4
1-2 hours	13	10.6
2-4 hours	3	2.4
>4 hours	11	8.9
Frequency of putting Facebook post		
Weekly	2	1.6
Monthly	3	2.4
Rarely	120	95.2

Table 3: Relationship between poor quality of sleep and the related risk factors among nursing students in a medical institution from South India.

Categories	Total (n=168)	Poor Sleep (n=68) (%)	Chi square\$	Prevalence Ratio (95% CI) #	Adjusted PR (95% CI) #
Academic year			<0.01		
First	43	27 (63)		5.1 (2.0-13.4)	2.6 (0.5-12.4)
Second	43	13 (30)		2.5 (0.9-7.0)	1.6 (0.4-6.2)
Third	41	23 (56)		4.6 (1.7-12.1)	3.4 (1.1-10.0)
Final	41	05 (12)		1	1
Frequency of checking WA			<0.01		
Once in less than an hour	53	30 (57)		1.7 (1.1-2.8)	1.3 (0.8-2.2)
Once in more than an hour	115	38 (33)		1	1
Using WA when feeling sleepy			<0.01		
Yes	22	16 (73)		2.0 (1.2-3.6)	1.1 (0.6-2.2)
No	146	52 (36)		1	1

Continued.

Categories	Total (n=168)	Poor Sleep (n=68) (%)	Chi square\$	Prevalence Ratio (95% CI) [#]	Adjusted PR (95% CI) [#]
Using WA while having food			<0.01		
Yes	10	08 (80)		2.1 (1.0-4.4)	1.4 (0.7-3.2)
No	158	60 (38)		1	1
Gender			0.9		
Male	23	09 (39)		1	
Female	145	59 (41)		1.0 (0.5-2.0)	
Residence			0.9		
Hostel	113	46 (41)		1	
Home	55	22 (40)		1.0 (0.6-1.6)	
Age of starting WA			0.08		
<18	103	47 (47)		1	
>18	65	21 (32)		0.7 (0.4-1.2)	
Average daily use of WA			0.8		
0-4 hours	137	55 (40)		1	
>4 hours	31	13 (42)		1.0 (0.6-1.9)	
Checking WA immediately after wake up			0.3		
Yes	84	37 (44)		1	
No	84	31 (37)		0.8 (0.5-1.3)	
Replying WA while in working			0.9		
Frequently	83	33 (40)		1	
Rarely or never	85	35 (41)		1.0 (0.6-1.7)	
Frequency changing status in WA			0.8		
Less than a month	109	45 (41)		1	
More than a month	59	23 (39)		0.9 (0.6-1.6)	
Frequency of changing DP in WA			0.07		
Less than a week	42	22 (52)		1	
More than a week	126	46 (37)		0.7 (0.4-1.2)	
Member of How many WA group			0.8		
Less than 5	123	49 (40)		1	
More than 5	45	19 (42)		1.1 (0.6-1.8)	
No of messages forwarded by you			0.1		
<5	153	59 (39)		1	
>5	15	09 (60)		1.6 (0.8-3.1)	

\$- Chi square<0.05 is statistically significant, # - bold values show significance p<0.05, WA-Whatsapp.

DISCUSSION

Social media platforms with their wide range of features and means to connect to people virtually has been a boon in today's global society. However, the younger generation including adolescents and teenagers are getting lured and addicted to these social networking sites at the cost of their physical, emotional and social health. Sleep has been one of the worst affected physiological function due to excessive indulgence in social networking sites especially WhatsApp and Facebook. This study was conducted among the nursing students of a medical college to find out the pattern of WhatsApp and Facebook usage and their impact on sleep quality.

In the current study, out of the 168 nursing students, all of them are using WhatsApp whereas only 125 of them are using Facebook. Out of these 168 users of WhatsApp, about 62% of them are using WhatsApp more than an hour every day and out of the 125 Facebook users, only 22% of

them are using Facebook for more than an hour a day. In their study, Nasirudeen et al found that out of 969 students who were surveyed, 68% of the WhatsApp users spent more than an hour a day using WhatsApp whereas only 36% of Facebook users spent more than an hour a day accessing Facebook.⁹ The usage of WhatsApp is more preferred than Facebook among students as the day-to-day communications including sharing of contents like photos and videos is more comfortable and easily done using a smartphone. In our study, about 26% of the nursing students were members of 6 or more WhatsApp groups. Shettigar et al conducted a study among medical students in Mysore where they found out that about 60% of the students were members of 6 or more WhatsApp groups.¹⁰ The possible reason for this difference is usage of smartphone is more among medical students and also, they spend more time in social networking sites as compared to nursing students.

In the current study, about 33% of participants use WhatsApp while having food, 19% of them are keeping internet on for more than 10 hours a day and 49% of the participants check their WhatsApp as the first activity of the day after waking up. Shettigar et al reported that 29% of their study participants use WhatsApp while having food, 23% of the participants keep internet on for 24 hours a day and also 54% of them check their WhatsApp immediately after waking up in morning.¹⁰ The pattern of usage of WhatsApp among the college students indicate their over indulgence of social networking sites and their increasing screen time which affects the attention span and sleep quality of the students thus having impact on their academic performance.

In the current study, the prevalence of poor sleep quality was maximum among the first-year students who showed 5 times higher prevalence ratio of poor sleep quality as compared to final year students. In their study, Almojali et al found out that the poor quality of sleep was found maximum in the first-year students as compared to the other three academic years.¹¹ There are more studies showing poor sleep quality among medical students of first academic year as compared to other years which may be because of the more stress level among the first-year students. However, there was no statistical significance found in these studies. In our study, 40.5% of the nursing students were found to have poor quality of sleep. Similar findings were reported in a study conducted by Anantachari et al in Karnataka where 40% of the medical students were found to be having poor quality of sleep.¹² These findings reflect upon the increasing prevalence of poor sleep quality among medical and nursing students, which may be attributed to different factors including excessive mobile phone usage, late night studying pattern and lifestyle factors leading to change of sleep wake cycle.

Limitations

The study was a cross-sectional study conducted among the nursing students using a self-administered questionnaire. Hence, the collected data has significant subjective influence where the students possible could modify their response and may not reflect real findings. There was no objective method used to evaluate the pattern of social media usage or to assess the sleep pattern of the students.

CONCLUSION

The social media usage and dependence of the younger generation on social media platform has grown to significant proportion where it is having deleterious effects on health such as impaired concentration, poor sleep quality and easy fatigability. The increasing trend of smartphone usage for day-to-day activity including academic work, hospital work as well as personal work has created circumstances where medical and nursing students are compelled to have higher usage of internet and smartphone. This cross-sectional study conducted among

nursing students showed 40% of them with poor quality of sleep based upon the PQSI score. The students who checked their WhatsApp within every hour, who used WhatsApp while feeling sleepy and while having food showed significantly higher prevalence of poor sleep quality. The pattern of WhatsApp usage as recorded in the study indicates the increased screen time among the students, which not only affects the daytime productivity but also influences the quality of sleep at nights. The effect of poor sleep quality is not just physical but it also affects the level of concentration, cognitive function and emotional balance of students. The utility of internet, smartphone and social media platform like WhatsApp is high and significant for college students as it facilitates faster learning, acquiring latest information and getting timely updates. However, the college students have to be guided and trained to bring balance in the usage of the internet and social networking sites as they are more vulnerable to various distractions of these sites. Thus, necessary corrective measures may be identified and implemented to moderate the mobile phone usage and improve the sleep quality of nursing students.

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