

Original Research Article

Mobile use, stress, sleep disturbances, and symptoms of depression in the medical profession: a cross-sectional study

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ABSTRACT

Background: With the use of mobile phones increasing in the current generation, it is vital to analyze its negative effects on both mental and physical health.

Methods: A questionnaire was given to 120 participants both studying and working in the medical profession. Assessment of the correlation between the use of their mobile device and health was made with mobile phone variables and mental health outcomes (including sleep disturbance, stress and depression). The Pittsburgh Sleep Quality Index (PSQI), Perceived Stress Scale (PSS) and the Centre for Epidemiologic Studies Depression Scale (CES-D) were the scales used to assess these correlations.

Results: Results showed a correlation between the hours of use on mobile devices and health aspects. Among the study population, 89.1% owned a single mobile device and 10.9% owned more than one mobile phone. Daily use among these individuals varied from 30 minutes to over 5 hours of use per day. Features used on mobile phones were most commonly communication (94.1%), Internet (92.4%) and social media (90.8%).

Conclusions: Statistically significant correlation is seen between mobile phone usage and stress, sleep disturbance and symptoms of depression.

Keywords: Mobile phone, Stress, Sleep disturbance, Depression, Sleep, Mental health

INTRODUCTION

In today's world, mobile phones have become a vital multipurpose tool and have become an integral part of society.¹ Today, devices are equipped with many more features than just communication, including Short Message Service (SMS), music, videos, games and Internet capability.² The use of mobile devices has increased exponentially over time all over the world.

However, along with its many advantages come several disadvantages including psychological dependency and overuse leading to many physical and mental health problems.

Thus, with the use of mobile phones increasing in the current generation, it is vital to analyze its negative effects on both mental and physical health. Many studies have been done to assess this, however very few studies have been done in particular to the medical profession population.

Objectives

The overall aim of this study was to investigate whether there are associations between psychosocial aspects of mobile phone use and health. To specify, this study assessed the correlation between mobile use and health.

Particular aims included:

- To examine for an association between increased mobile use and overall health within the medical profession.
- To identify any correlation between mobile use and quality of sleep of individuals in the medical field.
- To identify any correlation between mobile use and perceived stress of individuals in the medical field.
- To identify any correlation between mobile use and symptoms of depression of individuals in the medical field.

METHODS

The study group consisted of individuals studying and working in the medical field (n = 120) that responded to a questionnaire conducted at SRM Medical College, Hospital and Research Centre in February 2018. The questionnaire was formatted online through Google Survey and the link was given to random individuals to complete. Mobile phone variables included daily frequency of use along qualitative features such as whether sleep was reduced by use and whether there was use right before sleeping. Mental health outcomes included current stress; sleep disturbance, and symptoms of depression.

Inclusion criteria indicated that any individual in the medical field could respond to the questionnaire regardless of their age, sex or level of expertise. Exclusion criteria indicated that any individual who is not associated with the medical field could not respond to the questionnaire.

The study population was assembled through simple random sampling method. The study group consisted of 63.33% of individuals studying in the medical field and 36.66% of individuals either working or pursuing other activities in the medical field (i.e. Research).

Of this study population, 45% resided in India whereas 55% lived in other countries including Canada (48%), Pakistan (2%), Sri Lanka (2%), Dubai (1%), Vietnam (1%) and Ethiopia (1%).

Data was collected after obtaining the consent using a self-administered questionnaire, containing demographic details, variables on mobile usages, PSQI, PSS and CES-D scales. Confidentiality was strictly maintained of all data collected.

The Pittsburgh Sleep Quality Index (PSQI) is a scale used to measure quality and patterns of sleep in adults.³ It is used to differentiate sleep from poor to good using 7 components within the last month. These components are subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep

medications and daytime dysfunction. Each component is given a score and a sum of the 7 component scores will give the global PSQI score³. A global score of 5 or greater indicates a poor sleeper.

The Perceived Stress Scale (PSS) is one of the most used psychological instruments for measuring an individual's perception of stress⁴. This tool measures the degree to which situations in an individual's life are appraised as stressful. Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress. Scores ranging from 0-13 would be considered low stress. Scores ranging from 14-26 would be considered moderate stress. Scores ranging from 27-40 would be considered high perceived stress.⁴

The Centre for Epidemiologic Studies Depression scale (CES-D) measures symptoms of depression in nine different groups as defined by the American Psychiatric Association Diagnostic and Statistical Manual⁵. These symptoms are sadness, loss of interest, appetite, sleep, thinking, guilt, fatigue, agitation and suicidal ideation. A cut-off score of above 16 indicates identifying individuals at risk for clinical depression, with good sensitivity and specificity and high internal consistency.⁵

The data of this study was recorded in Google Spreadsheet and analysis was done using SPSS version 20. The mean, median and chi test was done to evaluate statistical significance.

RESULTS

The study group consisted of 63.33% of individuals studying in the medical field and 36.66% of individuals either working or pursuing other activities in the medical field (i.e. Research). The age ranged between 18 years old to 55 years old.

The median of mobile use was for around 3.5 hours daily, with a range between 10 minutes to 5 hours. The features used by individuals on their mobile device are seen in Figure 1.

Furthermore, 82.5% of the study population has the habit of checking their mobile device right before going to sleep (Figure 2). When asked how long they check their mobile device before going to sleep, the mean was 26 minutes with a range between 0 to 180 minutes. Figure 3 shows the responses when asked whether mobile use affects their sleep.

Associations between mobile use and perceived stress scale can be seen in Table 1 and is statistically significant. As seen, all individuals with high-perceived stress show mobile use of more than 3.5 hours per day. Whereas, 82.1% of individuals under low-perceived stress use their mobile devices for less than 3.5 hours per day.

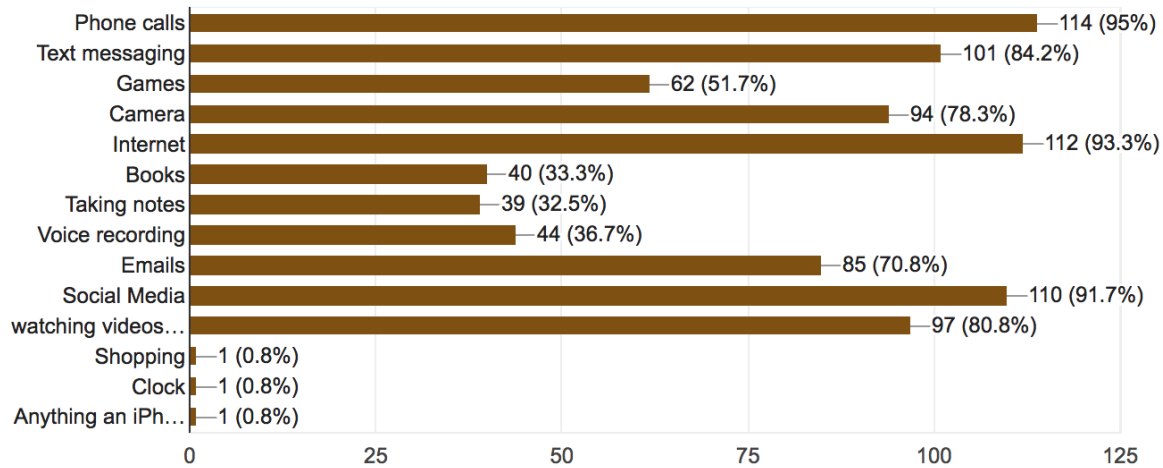


Figure 1: Features used on mobile device.

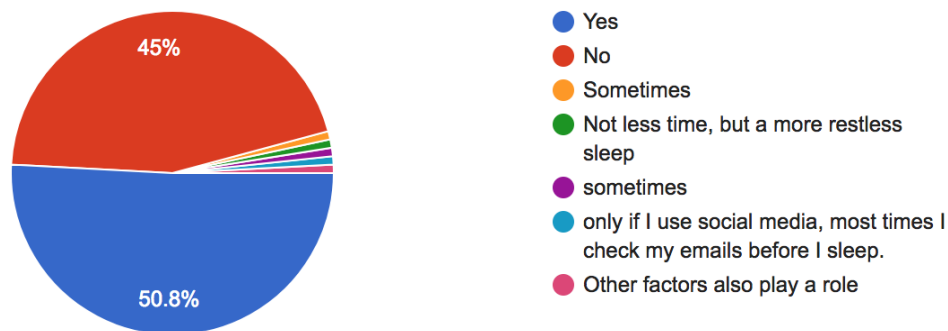


Figure 2: Habit of checking mobile device before going to sleep.

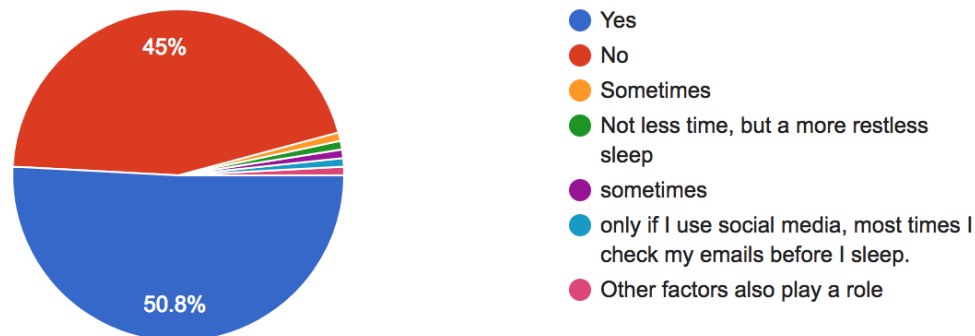


Figure 3: Results when asked if use of mobile device at night leads to less sleep per night.

Table 1: Association between PSS and mobile use.

PSS	Mobile use duration per day			Chi Square	P value
	≤3.5 hours	>3.5 hours	Total		
Low (0-13)	23	5	28	26.620	0.000* (*Statistically significant)
Moderate (14-26)	34	44	78		
High (28-40)	0	14	14		

Table 2: Association between PSQI and mobile use.

PSQI	Mobile use duration per day			Chi Square	P value
	≤3.5 hours	>3.5 hours	Total		
Good (GS<4)	24	10	34	10.141	0.001 (*Statistically significant)
Poor (GS>5)	33	53	86		

Table 3: Association between CES-D and mobile use.

CES-D	Mobile use duration per day			Chi square	P value
	≤3.5 hours	>3.5 hours	Total		
No risk (<16)	33	15	48	14.486	0.000 (*Statistically significant)
At risk (>16)	24	48	72		

The correlation between the Pittsburgh Sleep Quality index and mobile usage is shown in Table 2. It is seen that 84.1% of individuals have poor sleep when they use their mobile phones for more than 3.5 hours. Comparatively, 57.9% had poor sleep when they used their mobiles less than 3.5 hours ($p=0.001$). The correlation is seen to be statistically significant.

CES-D and mobile usage correlation is seen in Table 3. 76.2% of individuals who use their mobiles for more than 3.5 hours show risks of clinical depression.

DISCUSSION

Similar literature regarding this topic was compared with the results of the study. The average daily use of mobile devices in a study conducted at Karpaga Vinayaga Institute Of Medical Sciences And Research Center was 2 hours per day.⁶ The significant correlation between mobile use and sleep which was seen in this study was also seen in the study done at Karpaga Vinayaga Institute Of Medical Sciences And Research Center where it was also concluded that increased mobile use can affect academic performance in medical students.

A similar study done at Kashan University of Medical Science also showed significant correlation between mobile use, stress and sleep in the medical profession. Results showed that students who use their mobile phones more than 2 hours a day experienced sleep deprivation and daily somnolence.⁷ A correlation was also seen between the stress and sleep which are both greatly affected by increased use of mobile devices.

Another study done among medical students in Chennai showed that 34% of the study participants spend more than 1 hour either continuously or intermittently per day. This study further showed the level of addictions seen in these students with their mobile devices and again it was seen that increased mobile use lead to decreased sleep and various other health problems.⁸

Therefore, various literatures show the importance of bringing awareness of the direct and indirect negative consequences of increased mobile use. Moreover, it is shown to be crucial to perform various behavioural and cognitive interventions in order to change the pattern of mobile use to improve overall health.

CONCLUSION

Thus, evident correlation can be seen between mobile use and stress, sleep deprivation and symptoms of depression. It is important to shed light on to this issue, which is not always taken so seriously by the busy members of the medical community. Intervention should be done to help limit mobile phone use and promotion of good mental health and sleep should be done to those working in this very busy field.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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