

Original Research Article

Effects of cellphone on sleeping pattern of Young Adults in Central India: A cross-sectional study

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ABSTRACT

Background: In recent years the proliferation of cellphones has been implicated in the poor sleep of young people. Surveys have linked the mere presence of cellphones in the bedroom with later bedtimes, less time in bed, shorter sleep duration, and daytime sleepiness, prompting widespread recommendation that cellphone be removed from the bedroom. Adolescents are heavy users of cellphone. 72% reports using cellphones, in the hour prior to sleep.

Aims and Objectives: 1) To study the effects of cell phone usage on young adults.

2) To determine the average daily usage of cell phone by young adults.

3) To study the effects of cell phone usage on time management of young adults and to study the physical and mental hazards as reported by young adults after cell phone usage.

Materials and Methods: This was a community-based cross-sectional study on 100 samples of young adults of age 18-22 years studying in Govt. Agriculture College and Holkar Science College. This study was done for 1 year from Aug 2014 to July 2015. Data collected in preformed semi-structured questionnaire by using conventional technique. MS Excel software used for data analysis.

Results: Out of 100 study subjects, 95% of young adults are smart phone user. 38% of them spent 3-4 hours over their phone in a whole day. 27% of young adults use their smart phone for social networking mainly.

Conclusion: Mobile phone usage at night, leads to stress, depression, hormonal disturbance etc. It should be kept away from bed and should be used with low brightness, when uses at night time.

KEYWORDS: Cell phone, Young adults, sleep, effects, sleep pattern

1. INTRODUCTION

Sleep plays an important role in our physical health, like it is involved in repair & healing of heart and blood vessels. Ongoing sleep deficiency leads to – increase risk of Heart disease, Kidney disease, high blood pressure, diabetes and stroke. It also increases risk of obesity^[1]. Poor sleep is a common and debilitating problem of adolescent affecting around 25-40% of teenagers at some point in their development. The onset of puberty triggers hormonal changes

that delay circadian rhythms producing a physiological drive towards later sleep and wake times^[2]. At the same time adolescents becomes less sensitive to the build-up of homeostatic sleep pressure allowing them to stay awake for longer time^[3]. In recent years the proliferation of cellphones has been implicated in the poor sleep of young people. Surveys have linked the mere presence of cellphones in the bedroom with later bedtimes, less time in bed, shorter sleep duration, and daytime sleepiness, prompting widespread recommendation that cellphone be removed from the bedroom^[4]. Adolescents are heavy users of cellphone. 72% reports using cellphones, in the hour prior to sleep. When texting on a mobile phone, has also been acknowledged as an important phenomenon. To study as musculoskeletal symptoms due to intensive texting on a mobile phone have been reported. Other Physical symptoms reported in relation to mobile phone include headache, earache, and warmth sensation but also perceived concentration difficulties and fatigue including worries about possible sensitivity to electromagnetic fields (EMFs) related to mobile phones. Perceived electrosensitivity is associated with reporting symptoms of depression and worse general health compared to control^[5].

Aims and objectives: 1) To study the effects of cell phone usage on young adults.
2) To determine the average daily usage of cell phone by young adults.
3) To study the effects of cell phone usage on time management of young adults and to study the physical and mental hazards as reported by young adults after cell phone usage.

2. MATERIALS AND METHODS

This was a community-based cross-sectional study on 100 samples of young adults of age 18-22 years studying in Govt. Agriculture College and Holkar Science College Indore (Madhya Pradesh). This study was done for 1 year from Aug 2014 to July 2015. Inclusion criteria: subjects in the age group of 18-22 years and who give informed consent. Exclusion Criteria: subjects below 18 years and above 22 years and those not willing to participate in the study.

Ethical Permission :The ethical consideration was done by Institutional Committee of Mahatma Gandhi Government Medical College , Indore (M.P.)

Sample size and study tool:

The sample size was estimated using formula $N = Z^2pq/q^2$. A total 100 study subjects aged 18-22 years studying in Agriculture College and Holkar Science College Indore was included in the study. After explaining the study protocol and obtaining informed consent data was collected.

Data collection and Analysis :Data collected in preformed semi-structured questionnaire by using conventional technique. Data entry and statistical analysis were performed with the help of Microsoft Excel 2010. Descriptive statistics were used to present the results.

3. RESULTS

The study was conducted on 100 young adults aged 18-22 years studying at Govt. Agriculture college and Holkar Science College Indore. Table no. 1 depicts that 95% young adults were smartphone users. 38% of young adults spent 3-4 hours over their phone in a whole day. 27% of young adults use their smartphone for social networking mainly.

Table 1. frequency distribution of young adults using smartphone and time spent and purpose for using smartphone

variable	frequency	percentage
Smartphone users		
yes	95	95%
No	5	5%
Time spent over the phone in a whole day		
1-2 hours	27	27%
3-4 hours	38	38%
5-6 hours	30	30%
>6 hours	5	5%
Purpose of using smartphone		
Studying purpose	49	17%
Social Networking	75	27%
Leisure time (gaming etc)	41	14%
Entertainment and other	64	23%

Table no. 2 showing that 74% of young adults usually sleep 6-8 hours, 55% of young adults spent 15-30 minutes over their phone, before going to bed.72% young adults knows that cellphone affects sleeping pattern.

Table 2. frequency distribution of sleeping pattern and awareness among young adults

variable	Frequency	Percentage
Hours of sleep		
<6hours	4	4%
6-8 hours	74	74%
>8hours	22	22%
Time spent over the phone , before sleeping		
15-30 min.	55	55%
Upto 1 hour	28	28%
>1 hour	17	17%
Does cellphone affects sleeping pattern		
yes	72	72%
no	28	28%

Table no. 3 depicts that 47% of young adults using their phone maximum at night time(7-11pm), 60% young adults feels like loss of sleep when used phone for long duration, late night. 80% young adults keep cellphone besides them while sleeping. 45% of young adults keep their phone on ringing mode while sleeping.72% spent their maximum time on Chatting. 50% young adults are sometimes (<10days/ month) awakened by their phones at night.

Table 3. frequency distribution of mobilephone usage and time management among young adults

variable	Frequency	Percentage
Time of maximum cellphone usage		
day	14	14%
evening	21	21%
Night (7-11pm)	47	47%
Late night (after 11pm)	18	18%
Loss of sleep, when cellphone used for long duration, late night		
yes	60	60%
no	40	40%
While sleeping, cellphone are kept:		
Besides you	81	81%
Away from you, but in same room	17	17%
In another room	2	2%
Maximum time spent over the phone at night		
Calling	8	8%
Chatting	72	72%
Listening music	20	20%
Awakened by phone at night		
Never	40	40%
Sometimes(<10days/month)	50	50%
Frequently (>10days/month) or always	10	10%

Table no. 4 showing that physical and mental hazards faces by young adults using mobilephone.28% young adults complaints of eyeache and/or earache, while using phone for prolong duration at bedtime.37% young adults having difficulties falling asleep at night, when used cellphone for a long time at bedtime. 61% of young adults feel depressed next morning due to abnormal sleep.

Table 4. frequency distribution of physical and mental hazards faces by young adults using cellphone.

Variable	Frequency	Percentage
Problems faced while using cellphone for long duration at bedtime		
Headache	30	30%
Eyeache or earache	42	42%
Dryness of watering of eyes	37	37%
None of the above	28	28%
Have difficulties falling		

asleep at night,when used cellphone for a long time at bedtime		
Yes	37	37%
No	63	63%
Feeling depressed , due to abnormal /disturbed sleep at night		
Yes	61	61%
No	39	39%

4. Conclusion:

Mobile phone usage at night, leads to stress, depression, hormonal disturbance etc. It should be kept away from bed instead of placing it beside yourself , as cellphones emit electromagnetic radiations which affects health of both the sexes equally in a way or the other. Mobile phones should be used with low brightness, when uses at night time.

5. Discussion:

According to study done by Gradisar et al ^[6] , the study examines whether there are dose response relationship between electronic device use in bed prior to sleep and likelihood of problematic sleep including: late sleep onset and wake times on weekdays (sleep onset after midnight, waking after 8am) and weekends (sleep onset after 1am, waking after 10:30 am). They also found out short sleep duration on weekdays (<8hours) and weekends (<9hours) and increase tendency to wake later by more than 2.5 hours on weekends relative to weekdays. Another study done by Amanda L ^[7] titled ‘Adolescent sleep patterns and night-time technology use’ found out that over 70% of adolescent reported 2 or more electronic devices in their bedrooms at night. Use of devices in bed a nights per week or more was 46.8% cellphones. Device use had dose dependent associations with later sleep onset on weekdays and weekends and later waking on weekdays and weekends. Only ‘almost every night’ cellphone use was associated with short weeday sleep duration and ‘almost every night’ cellphone use was associated with wake lag (waking later on weewnds). According to study done by Thomee et al^{[8] [9] [10]} high frequency of mobile phone use at baseline was a risk factor for mental health outcomes at 1 year follow-up among the young adults. The risk for reporting mental symptoms at follow-up was greatest among those who had perceived accessibility via mobile phones to be stressful.

Conflict of interest: none

Acknowledgment: we would like to thanks Govt. Agriculture and Holkar Science College for their co-operation and support to conduct this study.

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