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The effect of smart phone use on student health status

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Abstract---Aims and objective: The aim of the study is to assess the impact of smart phones use on health status among students. Material and methods: Quantitative research approach was adopted to assess the impact of Smart Phone on Health Status among student: A study of self- financing colleges of J&K. The present study was conducted at selected nursing college in J&K. Purposive sampling technique was used to select the students who were selected from nursing colleges. The tool was developed by keeping in mind the objectives of the study and prepared after extensive review of literature, internet sources and through discussion with guide, co-guide and opinions of various experts in the field of Medical health nursing, Psychology, psychiatric, social and preventive medicine. The reliability of the tool was assessed by Cronbach's alpha method, which was Likert's scale impact of smart phone on Physical Health Status ($r=.845$), Likert's scale impact of smart phone on Psychological Health Status ($r=.764$). The tool was found to be reliable. The pilot study was carried out on 30 samples to assess the feasibility for conducting main research study and to assess the relevancy of the tool. The pilot study was conducted at BEE ENN nursing college, Jammu. The main data collection was done in the month of March 2021 and April 2021 at selected nursing college in J&K. 250 students were selected for the study by using purposive sampling technique. The data analysis was done according to study objectives by using descriptive and inferential statistics. The plan of the data analysis is as follows; Frequency, percentage, mean and standard deviation was calculated. Chi-square test was used for association. Result: Out of 250 students, According to the age; the majority of students were between 19 to 21 years of age. Students had an average age of 20.51 ± 2.308 . According to sex, the majority of 86.4% of students were female. According to family patterns, the majority of 70.8% of people lived in the nuclear family. Based on the monthly household income (Rs), the majority of people

had 45.2% of Rupees with 16K to 30K. The monthly average household income was Rs 32880 \pm 15635.96/month. Our finding suggests that the majority of 42.4% didn't use a phone at college. According to social sites, the majority of just over half 52.4% of students used Facebook. In terms of mobile internet use, most of 82.0% of the students used social networking. A majority of 79.6% played mobile games. Most of 80.8% of the students listened to mobile music. Just over half 51.6% of users did not shop via the mobile app while 48.4% did buying online. The majority 62% of students was using the online banking app. Based on the duration of use each day; the majority of 44% of students spend 1-2 hours. The current study revealed that majority of 80.4% had mild physical health impact while 19.6% had moderate level of physical health impact. The average physical health impact was 14.712 \pm 7.032. This study showed that 86 % had mild psychological health impact while 14% had moderate level of psychological health impact. The average psychological health impact was 16.504 \pm 5.456. Conclusion: The study concluded that pattern of smart phone use had significant impact on their physical and psychological health. Nurses role are very important to understand, management and prevention of these problems among students.

Keywords---impact, smart phone, health status, students.

Introduction

Mobile phones are considered as an essential part of day to day life. But its excessive use is detrimental to the mind and body; especially, for the young population. Even though there are many reports regarding the issues related to excessive use of smart phones and its impact on the academic and social life of college going students, research related to medical students is sparse. Mobile phone is largely seen as one of the world's biggest technology platform. It is a source of knowledge, entertainment, brand building, commerce, education and much more. However, mobile phone, which has over the years changed the way we live, work and communicates. Mobile phone addiction has been a headache for several Asian countries like India, South Korea, China etc over the past decade. The usage of mobile phones is a lifestyle component. Young people in particular are frequently continually spotted using their smart phones, making or receiving calls, while they utilize various programmes or just tap on touch screens for several minutes at a time. The possibilities offered by smart phones are intriguing and many individuals have a very high cumulative time using smart phones each day (Kormendi A., et al 2016).¹

Mobile phones are a very new and developing technology. There are still possible benefits of this technology and the potential psychological hazards still arise. One psychological danger, for instance, is the stress of users, who tend to be connected with feeling obliged to respond immediately to cellular activity to ensure spontaneity and access. Potential hazards also include sleep disturbance; the user's risk of cyber bullying exposures, especially the unwanted exposure to

pictures and/or victim recordings; and usage, especially among teens. The limits between overuse, abuse, dependency and dependence are not scientifically apparent in relation to the latter issue. Thus, while cell phones are handy and efficient, they are not without their potential psychological dangers (Sansone, R. A., & Sansone, L. A. 2013).²

Excessive use of Smart phones might lead to social issues including depression and social and emotional damage. Its use can also impair physical activity; however the relationship between smart phone dependence and physical activity is ambiguous. Mobile phone dependency can have an unfavorable effect on physical health by lowering the amount of physical activity, such as walking, resulting in increased fat mass and a decline in muscle mass linked with poor health implications (Shoukat, S, 2019).³ Because of technology advancement, Student life revolves around smart phones, which make, create or alter their behaviors. Students tend to focus more or rely on their smart phones in relation to their school work or social networking (Mukhdoomi, A et al., 2020).⁴

Material and Methods

Quantitative research approach was adopted to assess the impact of Smart Phone on Health Status among student: A study of self- financing colleges of J&K. The present study was conducted at selected nursing college in J&K. Purposive sampling technique was used to select the students who were selected from nursing colleges. The tool was developed by keeping in mind the objectives of the study and prepared after extensive review of literature, internet sources and through discussion with guide, co-guide and opinions of various experts in the field of Medical health nursing, Psychology, psychiatric, social and preventive medicine. The reliability of the tool was assessed by Cronbach's alpha method, which was Likert's scale impact of smart phone on Physical Health Status ($r=.845$), Likert's scale impact of smart phone on Psychological Health Status ($r=.764$). The tool was found to be reliable. The pilot study was carried out on 30 samples to assess the feasibility for conducting main research study and to assess the relevancy of the tool. The pilot study was conducted at BEE ENN nursing college, Jammu. The main data collection was done in the month of March 2021 and April 2021 at selected nursing college in J&K. 250 students were selected for the study by using purposive sampling technique. The data analysis was done according to study objectives by using descriptive and inferential statistics. The plan of the data analysis is as follows; Frequency, percentage, mean and standard deviation was calculated. Chi-square test was used for association.

Results

Section I

Table1
Finding related to the Socio-demographic profile of students

| N=250 | | | |
|---------------|--------|--------------|----------------|
| Variables | opts | Frequency(f) | Percentage (%) |
| Age(in years) | ≤ 2518 | 50 | 20.0 |

| | | | |
|-----------------------------|----------------------|-----|------|
| | 19 to 21 | 106 | 42.4 |
| | 22 to 24 | 72 | 28.8 |
| | ≥ 25 | 22 | 8.8 |
| Sex | Male | 34 | 13.6 |
| | female | 216 | 84.4 |
| Course | GNM | 24 | 9.6 |
| | Post B.Sc (N) | 26 | 10.4 |
| | B.Sc (N) | 178 | 71.2 |
| | M.Sc (N) | 22 | 8.8 |
| Academic class | Ist year | 61 | 24.4 |
| | 2 nd year | 75 | 30.0 |
| | 3 rd year | 68 | 27.2 |
| | 4 th year | 46 | 18.4 |
| Habitat | Rural | 190 | 76.0 |
| | Urban | 60 | 24.0 |
| Present residing | Home | 48 | 19.2 |
| | Hosteller | 180 | 72.0 |
| | Paying guest | 22 | 8.8 |
| Father's educational status | Informal | 50 | 20.0 |
| | Middle | 52 | 20.8 |
| | Secondary | 49 | 19.6 |
| | Senior secondary | 44 | 17.6 |
| | Graduation or above | 55 | 22.0 |
| Mother's educational status | Informal | 115 | 46.0 |
| | Middle | 25 | 10.0 |
| | Secondary | 33 | 13.2 |
| | Senior secondary | 44 | 17.6 |
| | Graduation or above | 33 | 13.2 |
| Father's occupation | Govt. job | 77 | 30.8 |
| | Pvt. Job | 33 | 13.2 |
| | Business | 64 | 25.6 |
| | Other | 76 | 30.4 |
| Mother's occupation | House wife | 138 | 55.2 |
| | Govt. job | 77 | 30.8 |
| | Pvt. job | 35 | 14.0 |
| Type of family | Nuclear | 177 | 70.8 |
| | Joint | 73 | 29.2 |
| Family income (Rs/month) | ≤ 15000 | 26 | 10.4 |
| | 16000 to 30000 | 113 | 45.2 |
| | 31000 to 45000 | 54 | 21.6 |
| | 46000 to 55000 | 35 | 14.0 |
| | ≥55000 | 22 | 8.8s |

Section II

Table 2
Finding related to assess the pattern of smart phone use among students

| N=250 | | | |
|-------------------------------------|-------------------|--------------|----------------|
| variables | opts | Frequency(f) | Percentage (%) |
| Use of mobile phone | Smart phone | 250 | 100.0 |
| Use of mobile phone at college | Yes | 100 | 40.0 |
| | No | 106 | 42.4 |
| | Sometimes | 44 | 17.6 |
| Use of social site | Facebook | 131 | 52.4 |
| | Instagram | 75 | 30.0 |
| | Twitter | 22 | 8.8 |
| | All the above | 22 | 8.8 |
| Use of mobile phone for video call | Very often | 107 | 42.8 |
| | Sometimes | 143 | 57.2 |
| Purpose of using internet by mobile | Social networking | 205 | 82.0 |
| | Chatting | 23 | 9.2 |
| | educational | 22 | 8.8 |
| Playing games | Yes | 199 | 79.6 |
| | No | 51 | 20.4 |
| Listening music | Yes | 202 | 80.0 |
| | No | 48 | 19.2 |
| Watching movie | Yes | 211 | 84.4 |
| | No | 39 | 15.6 |
| Online shopping | Yes | 121 | 48.4 |
| | No | 129 | 51.6 |
| Online banking | Yes | 155 | 62.0 |
| | No | 95 | 38.0 |
| Reading news | Yes | 71 | 28.4 |
| | No | 179 | 71.6 |
| Using e-mail in mobile | yes | 250 | 100.0 |
| Duration of usage per day | < 30 minutes | 68 | 27.2 |
| | 1-2 hours | 110 | 44.0 |
| | 3-4 hours | 59 | 23.6 |
| | > 4 hours | 13 | 5.2 |

Section III: Finding related to assess the impact of smart phone use on health status among students

Table 3.1
Impact of Smart phone Usage on Physical Health Status of Students

N=250

| Sr. No. | Level of Physical Health Impact | f | % | Mean \pm SD |
|---------|---------------------------------|-----|------|--------------------|
| 1. | Mild | 201 | 80.4 | 14.712 \pm 7.032 |
| 2. | Moderate | 49 | 19.6 | |

Table no.3.1 depict that impact of smart phone usage on physical health status of students. Out of 250 students; majority of 80.1% had mild physical health impact while 19.6% had moderate level of physical health impact. The average physical health impact was 14.712 \pm 7.032.

Table 3.2
Impact of Smartphone Usage on Psychological Health Status of Students

N=250

| Sr. No. | Level of Psychological Health Impact | f | % | Mean \pm SD |
|---------|--------------------------------------|-----|------|--------------------|
| 1. | Mild | 215 | 86.0 | 16.504 \pm 5.456 |
| 2. | Moderate | 35 | 14.0 | |

Table no. 3.2 demonstrates that impact of smart phone usage on psychological health status of students. Out of 250 students; majority of 86 % had mild psychological health impact while 14% had moderate level of psychological health impact. The average psychological health impact was 16.504 \pm 5.456.

Section IV: Finding related to find out the association of health impacts and selected variables of pattern of smart phone use among students

Table 4.1
Association of Physical health impacts and selected variables of pattern of smart phone use among students

N=250

| Sr. No. | Variables | Physical Health Impact | | χ^2 value | df | p value |
|----------|--------------------------------|------------------------|----------|---------------------|----|---------|
| | | Mild | Moderate | | | |
| 1. | Use of mobile phone at college | | | | | |
| | Yes | 73 | 27 | 10.011 | 2 | .007** |
| | No | 95 | 11 | | | |
| Sometime | 33 | 11 | | | | |
| 2. | Use of social site | | | | | |
| | Facebook | 95 | 36 | 18.174 ^F | 3 | .001** |
| | Instagram | 62 | 13 | | | |
| Twitter | 22 | 0 | | | | |

| | | | | | | |
|-----|---|-----|----|---------------------|---|--------------------|
| | All the above | 22 | 0 | | | |
| 3. | Use of mobile phone for video call | | | | | |
| | Very often | 95 | 12 | 8.346 | 1 | .004** |
| | Sometime | 106 | 37 | | | |
| 4. | Most common purpose of using internet by mobile | | | | | |
| | Social networking | 156 | 49 | 15.860 ^F | 2 | .001** |
| | Chatting | 23 | 0 | | | |
| | Educational | 22 | 0 | | | |
| 5. | Playing games | | | | | |
| | Yes | 150 | 49 | 15.619 | 1 | .001** |
| | No | 51 | 0 | | | |
| 6. | Listening music | | | | | |
| | Yes | 166 | 36 | 2.111 | 1 | .146 ^{NS} |
| | No | 35 | 13 | | | |
| 7. | Watching movie | | | | | |
| | Yes | 188 | 23 | 64.959 | 1 | .001** |
| | No | 13 | 26 | | | |
| 8. | Online shopping | | | | | |
| | Yes | 85 | 36 | 15.337 | 1 | .001** |
| | No | 116 | 13 | | | |
| 9. | Online banking | | | | | |
| | Yes | 117 | 38 | 6.256 | 1 | .012* |
| | No | 84 | 11 | | | |
| 10. | Reading news | | | | | |
| | Yes | 70 | 1 | 20.824 | 1 | .001** |
| | No | 131 | 48 | | | |
| 11. | Duration of usage per day | | | | | |
| | <30 minutes | 45 | 23 | 15.734 ^F | 3 | .001** |
| | 1-2 hours | 97 | 13 | | | |
| | 3-4 hours | 46 | 13 | | | |
| | >4 hours | 13 | 0 | | | |

NB: χ^2 = Chi square, *df* = degree of freedom, *F*= Fisher's Exact Test, *NS*= non-significant, **= Significant at 1%, *=Significant at 5%.

Table no. 4.1 reveals that association of physical health impact and selected variables of pattern of smart phone use among students. As result showed that use of mobile phone at college ($\chi^2 = 10.011$, $p=0.007$), use of social site (fisher's exact value =18.174, $p=0.001$), use of mobile phone for video call ($\chi^2 = 8.346$, $p=0.004$), most common purpose of using internet by mobile (fisher's exact value =15.860, $p=0.001$), playing games ($\chi^2 = 15.619$, $p=0.001$), watching movie ($\chi^2 = 64.959$, $p=0.001$), online shopping ($\chi^2 = 15.337$, $p=0.001$), reading news (χ^2

=20.824, $p=0.001$), duration of usage per day (fisher's exact value =15.734, $p=0.001$), found significant at 1%. Online banking ($\chi^2 =6.256$, $p=0.012$), found significant at 5%. Hence the null hypothesis is rejected. It is concluded that pattern of smart phone use among students had significant association on physical health impact.

Table 4.2
Association of Psychological health impacts and selected variables of pattern of smart phone use among students

| Sr. No. | Variables | Psychological Health Impact | | χ^2 value | df | p value |
|---------|---|-----------------------------|----------|--------------------|----|---------|
| | | Mild | Moderate | | | |
| 1. | Use of mobile phone at college | | | | | |
| | Yes | 100 | 0 | 55.287 | 2 | .001** |
| | No | 71 | 35 | | | |
| 2. | Use of social site | | | | | |
| | Facebook | 109 | 22 | 9.445 ^F | 3 | .018* |
| | Instagram | 62 | 13 | | | |
| | Twitter | 22 | 0 | | | |
| | All the above | 22 | 0 | | | |
| 3. | Use of mobile phone for video call | | | | | |
| | Very often | 72 | 35 | 54.390 | 1 | .001** |
| | Sometime | 143 | 0 | | | |
| 4. | Most common purpose of using internet by mobile | | | | | |
| | Social networking | 170 | 35 | 9.587 ^F | 2 | .005** |
| | Chatting | 23 | 0 | | | |
| | Educational | 22 | 0 | | | |
| 5. | Playing games | | | | | |
| | Yes | 164 | 35 | 10.430 | 1 | .001** |
| | No | 51 | 0 | | | |
| 6. | Listening music | | | | | |
| | Yes | 180 | 22 | 8.446 | 1 | .004** |
| | No | 35 | 13 | | | |
| 7. | Watching movie | | | | | |
| | Yes | 176 | 35 | 7.522 | 1 | .006* |
| | No | 39 | 0 | | | |
| 8. | Online shopping | | | | | |
| | Yes | 97 | 24 | 6.631 | 1 | .010* |
| | No | 118 | 11 | | | |
| 9. | Online banking | | | | | |
| | Yes | 142 | 13 | 10.673 | 1 | .001** |

| | | | | | | |
|-----|---------------------------|-----|----|--------|---|--------|
| | No | 73 | 22 | | | |
| 10. | Reading news | | | | | |
| | Yes | 71 | 0 | 16.143 | 1 | .001** |
| | No | 144 | 35 | | | |
| 11. | Duration of usage per day | | | | | |
| | <30 minutes | 46 | 22 | 31.332 | 1 | .001** |
| | 1-2 hours | 97 | 13 | | | |
| | 3-4 hours | 59 | 0 | | | |
| | >4 hours | 13 | 0 | | | |

NB: χ^2 = Chi square, df = degree of freedom, F= Fisher's Exact Test, NS= non-significant, **= Significant at 1%, *=Significant at 5%.

Table no. 4.2 reveals that association of psychological health impacts and selected variables of pattern of smart phone use among students. As result showed that use of mobile phone at college ($\chi^2 = 55.287$, $p=0.001$), use of mobile phone for video call ($\chi^2 = 54.390$, $p=0.001$), most common purpose of using internet by mobile (fisher's exact value = 9.587, $p=0.005$), playing games ($\chi^2 = 10.430$, $p=0.001$), Listening music ($\chi^2 = 8.446$, $p=0.004$), watching movie ($\chi^2 = 7.522$, $p=0.006$), online shopping ($\chi^2 = 6.631$, $p=0.010$), online banking ($\chi^2 = 10.673$, $p=0.001$), reading news ($\chi^2 = 16.143$, $p=0.001$), duration of usage per day (fisher's exact value = 31.332, $p=0.001$), found significant at 1%. While use of social site (fisher's exact value = 9.445, $p=0.018$) found significant at 5%. Hence the null hypothesis is rejected. It is concluded that pattern of smart phone use among students had significant association on psychological health impact.

Discussion

The present study was to assess Impact of Smart Phone Use on Health Status among Students: A study of Self-Financing Nursing Colleges of J&K. Descriptive study designed was adopted for this study. Purposive sampling technique was used to enroll the study subjects. 250 students were enrolled from selected nursing college of J&K. Out of 250 students, According to the age; the majority of students were between 19 to 21 years of age. Students had an average age of 20.51 ± 2.308 . According to sex, the majority of 86.4% of students were female. According to family patterns, the majority of 70.8% of people lived in the nuclear family. Based on the monthly household income (Rs), the majority of people had 45.2% of Rupees with 16K to 30K. The monthly average household income was Rs 32880 ± 15635.96 /month. Similar study was conducted by Rai S.Saroshe S, Khatri, A et al (2016)⁵ the effects of excessive use of smart phones among Nursing college students. They found the age of students were 18-25 years. The findings of present study were in relevance to the study of Dongre A S, Inamdar I F, Gattani P L (2017)⁶ to evaluate mobile phone dependence and impact of cell phone on health among adults. The result shown that the mean age of the respondents was 21.23 ± 9.44 years. They found majority of male i.e. (82.91%).

Our finding suggests that the majority of 42.4% didn't use a phone at college. According to social sites, the majority of just over half 52.4% of students used Facebook. In terms of mobile internet use, most of 82.0% of the students used

social networking. A majority of 79.6% played mobile games. Most of 80.8% of the students listened to mobile music. Just over half 51.6% of users did not shop via the mobile app while 48.4% did buying online. The majority 62% of students was using the online banking app. Based on the duration of use each day; the majority of 44% of students spend 1-2 hours.

The current study revealed that majority of 80.4% had mild physical health impact while 19.6% had moderate level of physical health impact. Headache (2.07 ± 1.037) and Sleeplessness (2.06 ± 1.162) are the most frequent physical symptoms. The average physical health impact was 14.712 ± 7.032 . This study showed that 86 % had mild psychological health impact while 14% had moderate level of psychological health impact. Anxiety (2.56 ± 1.0001) and Low self-esteem (2.06 ± 0.853) are the most frequent psychological symptoms. The average psychological health impact was 16.504 ± 5.456 . Most of the participants do online shopping of any kind of product. Consider Google as the storehouse of knowledge. It is observed that most of them are searching for the internet even for general knowledge. Tao, S, et, all (2017)⁷ also indicated that there was a significant association between mobile use and sleep quality with mental health symptoms.

The current study found association of physical health impact and selected variables of pattern of smart phone use among students. As result showed that use of mobile phone at college ($\chi^2 = 10.011$, $p=0.007$), use of social site (fisher's exact value $\chi=18.174$, $p=0.001$), use of mobile phone for video call ($\chi^2 = 8.346$, $p=0.004$), most common purpose of using internet by mobile (fisher's exact value =15.860, $p=0.001$), χ^2 playing games ($\chi^2 = 15.619$, $p=0.001$), watching movie ($\chi^2 = 64.959$, $p=0.001$), online χ shopping ($\chi^2 = 15.337$, $p=0.001$), reading news ($\chi^2 = 20.824$, $p=0.001$), duration of usage per day (fisher's exact value =15.734, $p=0.001$), found significant at 1%. Online banking ($\chi^2 = 6.256$, $p=0.012$), found significant at 5%. Hence the null hypothesis is rejected. It is concluded that pattern of smart phone use among students had significant association on physical health impact. This present study reveals that association psychological health impacts and selected variables of pattern of smart phone use among students. As result showed that χ^2 use of mobile phone at college ($\chi^2 = 55.287$, $p=0.001$), use of mobile phone for video call ($\chi^2 = 54.390$, $p=0.001$), most common purpose of using internet by mobile (fisher's exact χ value =9.587, $p=0.005$), playing games ($\chi^2 = 10.430$, $p=0.001$), Listening music ($\chi^2 = 8.446$, $p=0.004$), watching movie ($\chi^2 = 7.522$, $p=0.006$), online shopping ($\chi^2 = 6.631$, $\chi p=0.010$), online banking ($\chi^2 = 10.673$, $p=0.001$), reading news ($\chi^2 = 16.143$, $p=0.001$), duration of usage per day (fisher's exact value =31.332, $p=0.001$), found significant at 1%. While use of social site (fisher's exact value =9.445, $p=0.018$) found significant at 5%. Hence the null hypothesis is rejected. It is concluded that pattern of smart phone use among students had significant association on psychological health impact.

Conclusion

The study concluded that pattern of smart phone use had significant impact on their physical and psychological health. Nurses role are very important to understand, management and prevention of these problems among students.

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