

Patterns of Use of 'Smart Phones' among Male Medical Students at KFU and its Side Effects

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Abstract: ***Background:** Nowadays, smartphones are widely use all over the world especially between young Adults people, and this will lead to many health problems. **Objective:** To study the pattern of use of smart phones, the accompanying behaviour and related health hazards among medical students at King Faisal University, Ahsa, Saudi Arabia. **Methods:** A cross-sectional survey was carried out with 125 male students. The participants were enrolled by simple random selection in April 2016 at the College of Medicine, King Faisal University. A self-administered questionnaire was distributed and completed by each participant. **Results:** Of 125 students who completed the questionnaire, 38.4% of them see that smartphones have a better effect in their academic performance, 31.2% see it have a worse effect, while 30.4% of them denied any effect. 56% of participants use smartphones in medium use. Chatting is the most common reason of use of smartphones. Many medical side effects have been reported among medical students, chronic headache (63.2%), concentration problem (49.6%), some time long-term memory problem (30.4%), recent memory problem (40%), insomnia (47.2%) and prolong sleep (6.4%). There is a significant relation between participants' GPA and time which they use their smartphone in. there is a significant relation between type of phone and duration of use. And also significant relation between type of phone and effect of smartphone in academic performance. **Conclusion:** Smartphones are widely used among medical students but college work is not the main reason of use and chatting is the commonest. According to the experience and opinions of most of participants, smartphones increase the productivity and help in work for medical students. Even the most of medical students use smartphone by medium use, they get many medical effects, and headache is the commonest.*

Keywords: pattern, smart phones, medical students, KFU

1. Introduction

In the last two decades, the use of smart phones has increased enormously in all the world. We mainly use Smart phones for calls and messages, but data transfer, music, games, and other applications are becoming increasingly popular, especially between young Adults people (1). Use of smart phones has exploded and has become a necessary part of studying, business, commerce and society. It makes easy to stay in touch with people, but their use has elevated concern that contact to radiation through the smart phones might have negative impacts on health. Medical college students might be more susceptible because of their heavy use of smart phones for study and work. Smart phones can cause discomfort, dizziness, and skin burning sensation. Studies on smart phone effects in Saudi population are minimal. AlKhlaifi et al in their study of 437 subjects showed that symptoms experienced among Saudi mobile phone users were headache (21.6%), sleep disturbance (4. %), tension (3.9%), fatigue (3%) and dizziness (2.4%). (2) . It has been shown that young Saudi people who use smart phones excessively (for both speaking and write messages) have increased restlessness, more careless lifestyles, more consumption of stimulating beverages and more vulnerable to stress (3). The behavioral risk with a smart phone includes using the smart phone while driving, on silent mode, in closed spaces and while charging. (4). Smart phone users showed increased levels of tiredness and depression as reported by Johansson et al. (5). According to date, approximately every medical student in Saudi Arabia possesses a smart phone. As reported in medical literature, smart phones may cause health problems, for example sleep

disturbances, headache impairment of short term memory, and more seriously, significant increase in the frequency of attacks of seizures in epileptic children, and brain tumors among users(6). The hypothesis of this study was that the use of smart phones is associated with health symptoms such as vision problems, hearing and other problems. The purpose of this learning was to verify the prevalence of specific symptoms due to the use of smart phone among male medical student at King Faisal University in Al-Ahsa city. And to identify some risk factors associated with symptoms.

2. Methodology

We performed "descriptive cross-sectional" survey through April 2016 at KFU, college of Medicine with 140 male Medical students in all year, who was elected by simple random selection. As the use of smart phones is limited through male students at the college about half of our participants were in few last years. As these students are pliable to utilize these smart phones at hospitals, and we saw most of the students at KFU, college of medicine at all time of break using smart phones. Of those choosing, 125 participated "response rate, 89%" and done the questionnaire. A questionnaire was used, which covered personal data, type of mobile phone, duration of use, frequency of use, reasons for use, cost of charging per month and side effects on person chronic headache, concentration problems, long-term or recent memory impairment, sleep disturbance. The goal of the survey was demonstrated to the students, and verbal informed approval was gained. The recommendation of the ethics committee and the scientific committee of college of medicine at KFU was checked out,

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confirm, and approved the suggestion. Privacy and particularity were confirmed.

3. Results

125 male medical students are the total participants in this study. Their age is ranging from 19 to 27 year. Most of surveyed students (44%) were from 2nd year. Regarding to GPA, 27 students (21.6%) have GPA from 4.5-5 out of 5, 39 students (31.2%) have GPA from 2.5-3.4 while most of students (47.2%) have GPA from 3.5-4.4. Samsung phones are widely used among participants (60.8%), while I phone mobile is less popular (32.8%), and blackberry is less used (4.8 %), however less than 7% of them use other types of phones. Most of participants (38.4%) see that the effect of using the smartphone in their academic performance is better, while some of them (31.2%) said there is a worse effect, and remains (30.4%) see that there is no effect. About 76% of students were using smartphones for more than 12 months. When participants have been asked about frequency of their use of smartphones either heavy, medium or light, 38.4% of them choose heavy, and most of them (56%) choose medium use, while the light use was the choose for only 5.6% of them. Most of students (63.2%) are using smartphones 2-4 hours per day, while small percent are using them only in demand and at bed time (16.8%, 10.4 respectively). Regarding to the reason of their use of smartphones, chatting is the most common reason for them (81.6%), few of them using smartphones for college work or only for talking. 85.6% of students thinks that there are medical effects for using smartphones, most of them (52.8%) mentioned headache as side effect, while 24% of them mentioned muscle and eye strain, and less percent (7.2%) mentioned anxiety. Smartphones help around 96% of participants in their work, and most of students (87.2%) agree that smart phones increase productivity, while 11.2% of them disagree and 1.6% strongly disagree.

Regarding to the use of smartphones in silent mode, 88.8% of them does. 48% of participants use the silent mode in lecture time while 32.8% of them use that at all the time, and some of them (18.4%) at sleeping time. About which place they use the silent mode, most of them (78.4%) use it at all places. 55.2% of participants are used to charge their smartphones in bedroom and 37.6% in living room, while very few percent (4%) of them use study room to charge. And most of them (80%) charge in closed places. Using mobile in closed place is existing by 60%, and 79.2% use their smartphones while charging.

Side effects of using smartphones are existing as follow, chronic headache (63.2%), concentration problem (49.6%), and small percent (24%) get concentration problem for some time. 30.4% of them have long term memory problem and 40% of them have recent memory problem. 47.2% of them have insomnia while some of them (6.4%) have prolong sleep.

According to table 1, there is significant relation between participants' GPA and time which they use their smartphone in (P-Value = 0.001) . However, there is no significant

relation between GPA and any other factor, either type of phone, effect of use of smartphone in academic performance, duration of use of smartphone, frequency of use, reason of use nor role of smartphone in helping with work (P-Value is more than 0.05).

According to table 2, there is a significant relation between type of phone and duration of use (P-Value = 0.026). And also significant relation between type of phone and effect of smartphone in academic performance. However, there is no relation between type of phone and other factor, either frequency of use, reason of use, role of smartphone in helping with work, opinion about role of smartphone in increasing productivity nor side effects (chronic headache, concentration problem, long-term and recent memory problem and sleeping disturbance) (P-Value less than 0.05).

4. Discussion

We found that 85.6% of smart phone users consider that these phones have side-effects, 38.4% use them heavily (mostly because of the wide range of services other than telephoning, such as text messaging, chatting, MMS, email, Internet access, medical applications, short-range wireless communication, playing games and photography).

Our study showed that an effect on academic performance was reported by 69.6%, with a bad effect reported by 31.2% and a good effect by only 38.4%. We also found that 84% of smart phone users consider that these phones have medical side-effects, 36.8% had chronic headache, 30.4% had long-term memory impairment, 40% had recent memory impairment, 49.6% had permanent concentration problems and 24% sometimes had impaired concentration. 53.6% had sleep disturbances, 47.2 % of them had Insomnia and 6.4% of them had prolonged sleep.

Maier et al. in 2000 reported that headache, sleep disturbance, lack of concentration and impairment of short-term memory were related to use of mobile phones(7),and a survey in 2005 showed that mobile phones may cause headache, ex- treme irritation, increased carelessness, forgetfulness, poorer reflexes and a clicking sound in the ears(8).Another study showed that use of smart phones for calling and text messaging after dark was associated with sleep disturbances between Japanese adolescents(9).

In our study, a considerable number of the students reported the behavioural risk while using a smart phones, such as using the smart phone in a closed space or while charging it and charging the smart phone in the bedrooms. According to the Japanese National Institution of Information and Communication Technology. the majority of the radio frequency energy from the smart phones that used in metallic enclosed environments, such as trains, airplanes and elevators, remains within these structures because of the lack of an escape way which possibly resulting in field levels exceeding the international safety guidelines (10).This has raised anxiety about the possible health effects of passengers in these environments. In our study, 7.2% of smart phone users reported anxiety.

The results of our study research suggest significant risks for various health problems among male medical students who use smart phones. These smart phones participate in the lives of medical students, and their impact on the mental and physical health of the students should be discussed between students and their parents to prevent any harmful effects.

5. Conclusion

Smartphones are widely used among medical students but college work is not the main reason of use and chatting is the commonest. According to the experience and opinions of most of participants, smartphones increase the productivity and help in work for medical students. Even though most of medical students use smartphone by medium use, they get many medical effects, and headache is the commonest.

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Table 1

	Pearson Chi-Square Value	df	P value
what is your GPA ? * What type of phone do you use ? *	11.021	6	0.088
what is your GPA ? * How do you see the Effects of phone use on your academic performance?	6.56	4	0.161
what is your GPA ? * What is the duration of use (months) ?	4.691	6	0.584
what is your GPA ? * How is the frequency of use ?	8.883	4	0.064
what is your GPA ? * When to use mobile?	15.792	6	0.001
what is your GPA ? * Why used ?	11.922	8	0.155
what is your GPA ? * Does your mobile help with your work ?	5.814	4	0.213
what is your GPA ? * How much do you agree that smartphones increase productivity?	3.162	6	0.788

Table 2

What type of phone do you use? * * What is the duration of use (months)?	18.863 ^a	9	0.026
What type of phone do you use ? * * How is the frequency of use ?	10.221 ^a	6	0.116
What type of phone do you use ? * * Why used ?	9.076 ^a	12	0.696
What type of phone do you use ? * * Does your mobile help with your work ?	1.652 ^a	6	0.949
What type of phone do you use ? * * How much do you agree that smartphones increase productivity?	7.196 ^a	9	0.617
What type of phone do you use ? * * Chronic headache:	.872 ^a	3	0.832
What type of phone do you use ? * * Concentration problems	6.987 ^a	6	0.322
What type of phone do you use ? * * Long-term memory impairment	2.119 ^a	3	0.548
What type of phone do you use ? * * Recent memory impairment:	1.951 ^a	3	0.583
What type of phone do you use ? * * Sleep disturbances:	4.291 ^a	6	0.637
What type of phone do you use? * * How do you see the Effects of phone use on your academic performance?	13.871 ^a	6	0.031