Correlation of Smart Phone use and Academic Performance of Physiotherapy Students

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Abstract

Introduction: Now days, Information Technology (IT) becomes a vital source of gaining knowledge and information from all over the world and it promotes the industries related to it. Medical students and doctors widely used smart phones for reading books, medical app, drug formulations, new intervention in diseases and visualization of X-rays from rest of the world. Objective: To assess the effect of smart phones technology on academic performance of physiotherapy students. Methodology: a cross-sectional survey study was done on 181 physiotherapy students at GJUS&T, Hisar, Haryana. A questionnaire composed of 10 questions was distributed to students after taking signed inform consent. The qualitative data was collected and analysed with SPSS software 16.0 version. Data presented as Mean±SD and pearson correlation test was used for assess relationship. Results: Mean±SD of CGPA score for 181 students was 59.98±4.93 and Mean±SD of questionnaire scale score was 28.80±10.83. Pearson correlation test showed that there was negative correlation between two parameters and r value for the study was -0.45 and significance level was .550. Conclusion: The conclusion of this study presents that use of smart phone did not affect their academic performance or CGPA score of physiotherapy students.

Key words: Smart phones; Physiotherapy students; Academic performance; CGPA Score

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Introduction

Now days, Information Technology (IT) becomes a vital source of gaining knowledge and information from all over the world and it promotes the industries related to it. One of the fastest growing technologies of IT is mobile technology, which used creates, transform and manipulates information by using small smart mobile phone devices\(^2,3\). Smart phone mobile technology emerged a great revolution in IT industries by using network technology tools like wireless application protocol (WAP), Bluetooth, 3G & 4G, and general packet radio service (GPRS)\(^3,4,5\).

Mobile technology can be used anytime, anywhere by inculping internet data in to smart phones and help individuals in communication and sharing knowledge. Mobile technology is widely used in promoting research and creating new ideas in growth of an educational institution as well as carrier advancement of students of institutes\(^6-10\). Medical students and doctors widely used smart phones for reading books, medical app, drug formulations, new intervention in diseases and visualization of X-rays from rest of the world\(^11-15\). The smart phone has also proved useful within medical student populations as a way of delivering education improving case logbook use, sharing information and clinical professional development\(^16-18\).

A recent survey done in UK concluded that 84% of the medical students used smart phone as valuable tool to their education\(^12\), 65% students of Canadian university used smart phone application for searching clinical textbooks and drug discovery\(^19\). Another study conducted in Canadian university showed that 85% of the students have a smart phone and 77% of them used medical app for their research\(^20,21\).

But the negative aspects of smart phone addiction were also noted on their performance. Despite the potential impact of smart phones on health care, the possible misuse of these devices has been questioned and the establishment of guidelines to ensure appropriate use has been advocated\(^22-26\). The popularity and importance of mobile phones among students cannot be underestimated but advantage and disadvantage overused technology needs to be considered for more research. The research literature regarding impact of smart phone technology on medical students and how it affects students positively or negatively was not updated yet. Further, to assess the relationship between smart phones use and academic performance of students in the present study.

Methodology

The present study was cross-sectional co relational survey study which was conducted at the Department of Physiotherapy, Guru Jambheshwar University of Science & Technology, Hisar. Wi-Fi internet facility has been provided to students of university. Data collection for study was collected from students of Bachelor of Physiotherapy (BPT) and Master of Physiotherapy (MPT) of GJUS&T, MAMC, Agroha and Collage of Physiotherapy, PGIMS (Rohtak). The smart phone addiction scale – SV questionnaire for data collection was prepared by principal researcher and from past studies\(^26,27\). The questionnaire was distributed among 187 2nd year to 4th-year physiotherapy participants of university. Six students did not complete the questionnaire so final analysis includes 181 students. The questionnaire includes information regarding demographic details of students like age, gender, year of study, CGPA score and second part includes 10 questions like missing plan work due to smart phone use, hard time concentration loss due to smart phone use, feeling pain in wrist or back of neck while using phone, feeling impatient, constantly checking phone etc. A number scale (1-6) was used for scoring of questionnaire questions (1–strongly disagree; 2–disagree; 3-weekly disagree; 4–weakly agree; 5–agree and 6–strongly agree). At last, only full filled questionnaire from participant were used for final data analysis.

Data analysis

Likert scale score was used for final data analysis with the help of SPSS version 16.0. The qualitative data was presented as mean and standard deviations. Pearson correlation coefficient test was used to see the relation between CGPA score and questionnaire scale score.
Results

Out of 181 Physiotherapy students, 129 (68.6%) were females and 52 (30.9%) were males. The overall mean age of 181 students were 21.32±1.44 years (female age was 21.09±1.33 years and mean male age 21.83±1.54 years). Mean ± Std Dev of all questions (1 to 10) were summarized in table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>Mean±Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>18.00-26.00</td>
<td>21.32±1.44</td>
</tr>
<tr>
<td>SCALE Score</td>
<td>10.00-54.00</td>
<td>28.87±10.91</td>
</tr>
<tr>
<td>CGPA Score</td>
<td>24.00-75.00</td>
<td>59.98±4.93</td>
</tr>
<tr>
<td>Missing planned work</td>
<td>1.00-6.00</td>
<td>3.07±1.70</td>
</tr>
<tr>
<td>Having a hard time concentrating in class, while doing assignments</td>
<td>1.00-6.00</td>
<td>2.85±1.54</td>
</tr>
<tr>
<td>Felling pain in the wrists or at the back of the neck</td>
<td>1.00-6.00</td>
<td>2.87±1.77</td>
</tr>
<tr>
<td>Won’t be able to stand</td>
<td>1.00-6.00</td>
<td>2.46±1.57</td>
</tr>
<tr>
<td>Feeling impatient and fretful</td>
<td>1.00-600</td>
<td>2.78±1.57</td>
</tr>
<tr>
<td>Having my smart phone in my mind</td>
<td>1.00-600</td>
<td>2.44±1.56</td>
</tr>
<tr>
<td>I will never give up using my smart phone</td>
<td>1.00-600</td>
<td>2.65±1.55</td>
</tr>
<tr>
<td>Constantly checking my smart phone</td>
<td>1.00-600</td>
<td>3.20±1.70</td>
</tr>
<tr>
<td>Longer use of my smart phone</td>
<td>1.00-600</td>
<td>3.27±1.66</td>
</tr>
<tr>
<td>Too much use of smart phone</td>
<td>1.00-600</td>
<td>3.16±1.83</td>
</tr>
</tbody>
</table>

When we correlate between total score of scale of students and performance of students there was negative correlation between these two variable (r=0.45). Hence our hypothesis was accepted.

Table 2: Correlation between CGPA score and Scale Score

<table>
<thead>
<tr>
<th>CGPA</th>
<th>Scale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig.(2-tail)</td>
<td>-0.45</td>
</tr>
<tr>
<td>N</td>
<td>181</td>
</tr>
<tr>
<td>Scale Score:</td>
<td>Pearson correlation</td>
</tr>
<tr>
<td>Sig.(2-tail)</td>
<td>-0.45</td>
</tr>
<tr>
<td>N</td>
<td>181</td>
</tr>
</tbody>
</table>

Discussion

In modern era, use of mobile phone had changed from last 1- 2 decade. Due to advancement in technology, smart phones have changed from communication devices to multitasking. This findings is similar to our study findings that 99.8% of student using smart phones. Use of Smart phone was less in the United Kingdom based community then our study. The result of British study concludes that medical applications were used by 83.3% of participants and 47% of participant used it for studies.

A study done in Pakistan showed that 99% of the participants have a smart device; 89.1% had Medical Apps and this result is similar to results of Monash University study and Canadian study revealed that 79% and 89% of their study participants used mobile apps respectively. American Researcher observed that medical apps advised medical students for presentation preparation, accessing medical innovations, new drug intervention and gaining knowledge about recent medical treatment. American study found that
medical students used installed apps for documentation of patients, statistics calculations and accessing advances medical treatment\textsuperscript{30}.

Sayedalamin Z et al 2016 study results found that 89.1% had medical apps but the use of app in a positive way was found to be minimal\textsuperscript{28}. Similar view observed in our study participants that the perception of our participants towards use of medical application software in enhancement clinical skills was on the negative side. On the other hand, vast number of past studies held in Malaysia, United Kingdom, and Australia found that 68.9% of medical students used medical application software for a medical checkup, statistical calculations in medical, and calculation of dosage of drug \textsuperscript{31,32,33}.

Our study participants did not use smart phone for increasing their CGPA scores, cover curriculum of study modules but using them for entertainment purpose.

**Conclusion**

The conclusion of this study presents that use of smart phone did not affect their academic performance or CGPA score of physiotherapy students.

**References**


33. Aungst T. Survey results show how medical student use of medical apps differs from resident physicians. iMedicalapps; 2013. p. 25.