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Original Research Paper

Anesthesiology

USE OF SMARTPHONE AMONG ANAESTHESIOLOGIST DURING ANAESTHESIA INTERFERES WITH PATIENT CARE: A SURVEY

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ABSTRACT

Introduction: Usage of smart phones have become an integral part of the professional and personal lives of the population worldwide. Though the usage of smart phones applications has increased the efficiency in the workplace, it can also be a significant distraction to the patient care. **Objective:** The objective of this study is to determine whether the use of smart phone among anesthetists during patient care improves or provides distraction in patient care. **Results:** The present study has shown that the prevalence of smart phone usage was 85.7%. The purpose of smart phone usage in increasing order of their frequency was internet surfing, phone calls, Messaging and usage of social media. Only 33.3% of the hospitals in which the study participants work had smart phone usage restriction inside the operation theatre and 27.6% had restriction except for communications. **Conclusion:** Smartphone usage result in increased reaction time, decreased focus and reduced behavioural performance during cognitive tasks. Hence its usage has to be strictly needed basis during the intra-operative period.

KEYWORDS : Anesthetist, Patient care, Smart phone;

Introduction:

Technological advancement in the past decade has an impact in medical field. Since the advent of the cellular phone in 1973,[1] the mobile communication has extremely changed the people's personal and professional life worldwide. Smart phone discovery with improved batteries, fast processors and increased operating system efficiency have flagged the way for its increased usage. Franko OI and Tirrell TF has shown that 85% of medical providers in a training Programme were using smartphone.[2]

Like other field, medical field also had a resounding impact because of these technologies. In the field of anesthesia, the usage of smart phones include communication among the team members; use of applications for dose calculation, drug reference and textbook reference etc; transfer of information; telemedicine and e-learning etc.[3] The smart phone usage has shown to excel in the field of diagnosis too as stethoscope, pain scoring device, arrythmia diagnosis, neuromuscular function determination etc.[4]

Although there is plethora of benefits from smart phone usage, literature have also shown its double-edged sword nature as a potential distractor of patient care.[5] This kind of 'distracted doctoring' is more common among the anesthetists and can result in adverse outcome in the patient.[6]

Although this distraction depends upon many other factors like experience of the medical professional, age etc. it is imperative to look into such harmful effect among all the anesthetists.

Though literature have shown an optimistic side of the smart phone usage among the anesthetist, its negative side has been less explored among the developing countries. With this background, the present study was undertaken with the objective to determine whether the use of smart phone among anesthetists during patient care improves or provides distraction in patient care.

Material and Methods:

Study type

The study was a cross-sectional study conducted among anesthesiologist.

Study duration

The duration of the study was 1 month after the ethical committee approval.

Sample size determination

With the prevalence of 93.7%[3] and allowable error of 5%, the sample size calculated was calculated using the formula $4pq/L^2$. The sample size arrived was 105.

Sampling method

The convenience sampling method was used to derive the samples.

Study instrument and data collection

A standardized pretested validated semi-structured questionnaire was administered as the study instrument. The data collection was done through online survey after registration.

Statistical analysis

The data was entered in Microsoft excel and after checking the normality of the data, the analysis was done in Statistical Package for Social Sciences (SPSS IBM) 21. The descriptive data were expressed in frequency and percentages and the association was done using Pearson Chi-Square test, and p-value less than 0.05 will be considered significant.

Ethical consideration and confidentiality

All participants were informed regarding the purpose of study, benefits, procedure, and confidentiality of the research study. The study was undertaken after getting informed consent from the participants using the pretested, validated semi-structured questionnaire.

Results:

Majority of the study participants belonged to age above 30 years.(Table 1)

Table 1: Profile Of The Study Participants

S no	Variable	Frequency	Percentage
1	Age (years)		
	20-30	19	18.1
	31-40	24	22.9
	41-50	21	20
	51-60	20	19
	>60	21	20
2	Profession		
	Junior Resident	36	34.3
	Senior Resident	42	40
	Senior physician	27	25.7
3	Type of hospital		
	University hospital	34	32.4
	State training and research hospital	24	22.9

	State hospital	24	22.9
	Private hospital	23	21.9

All the study participants own Smart phone (100%). Only 33.3% of the hospitals in which the study participants work had smart phone usage restriction inside the operation theatre and 27.6% had restriction except for communications. Excluding the 'never used smart phones', the prevalence of smart phone usage among the study participants was 85.7%.(Table 2)

Table 2: Distribution Of Study Participants According To The Usage Of Smart Phone

S no	Variable	Age (years)					P value*
		20-30	31-40	41-50	51-60	>60	
1	Frequency of usage						0.408
	Very often	5	8	5	4	5	
	Often	5	2	6	6	1	
	Sometimes	4	8	3	3	6	
	Seldom	4	2	3	3	7	
	Never	1	4	4	4	2	
2	Purpose of usage						0.435
	Calls	3	4	4	8	6	
	Social media	2	5	8	4	3	
	Surfing internet	7	7	6	4	8	
	Messages	5	6	3	4	4	
	Playing games	2	2	0	0	0	
3	Usage during critical stage						0.279
	Very often	0	0	0	0	0	
	Often	0	0	0	0	0	
	Sometimes	0	0	0	0	0	
	Seldom	10	13	6	6	9	
	Never	9	11	15	14	12	

Distractions because of smart phone usage were less in study participants. (fig 1 & 2)

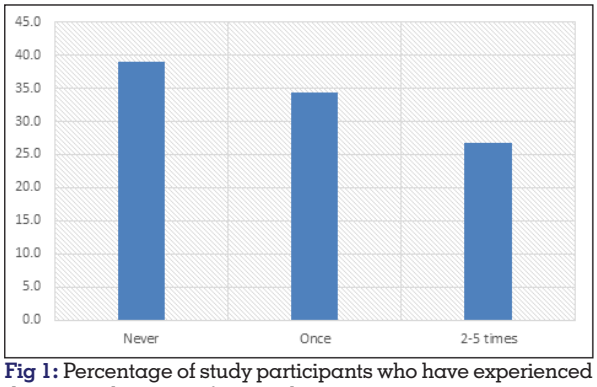

Fig 1: Percentage of study participants who have experienced distraction because of smart phone usage

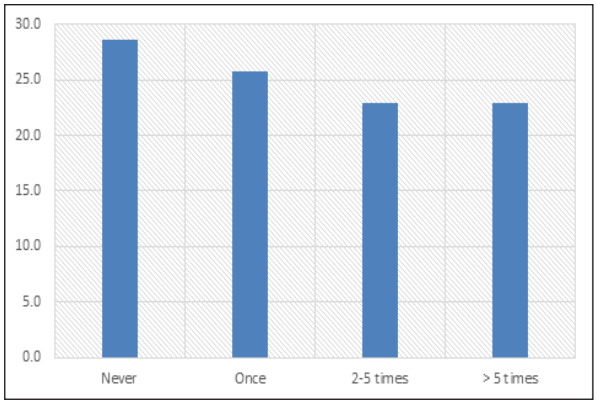

Fig 2: Percentage Of Study Participants Who Have Witnessed Distraction Due To The Smart Phone Usage By Their Colleagues

None of the study participants have been warned by their seniors for the usage of smart phone and only majority of the study participants (84%) have anesthesia related application on their phone. (Table 3)

Table 3: Attitude Regarding Smart Phone Usage Among The Study Participants

S no	Variable	Frequency	Percentage
1	Method of usage leading to distraction		
	Phone calls	20	19
	Social media	21	20
	Surfing internet	24	22.9
	Messages	18	17.1
	Playing games	22	21
2	Need for restriction of smart phone usage in Operating theatres		
	Yes	37	35.2
	No	33	31.4
	Partly	35	33.3

The questionnaire that was used in the survey. (Table 4)

Table -4 Use Of Smartphone Among Anaesthesiologist During Anaesthesia Interferes With Patient Care: A Survey

1) Which is your age range?
I) 20-30
II) 31-40
III) 41-50
IV) 51-60
V) >60

2) What is your professional group?
I) Anesthesia junior resident
II) Anesthesia senior resident
III) Senior anesthesia physicians

3) What kind of hospital do you work?
I) University hospital
II) State training and research hospital
III) State hospital
IV) Private hospital

4) Do you have a smartphone?
I) Yes
II) No

5) Is there any restriction for smartphone use in operating theatre at your instituition?
I) Yes
II) No
III) Partly(only communication allowed)

6) How often do you use your smartphone during anesthetized patient care?
I) Very often
II) Often
III) Sometimes
IV) Seldom
V) Never

7) For what purpose do you use smartphone during operation time?(more than one choice can be opted)
I) Phone calls
II) Social media
III) Surfing internet
IV) Messages
V) Playing games

8) How often do you use your phone at critical stage that is during induction and emergence?
I) Very often
II) Often
III) Sometimes
IV) Seldom

V) Never

9) Have you ever experianced any distraction or negative medical consequence because of smartphone usuage during anesthetized patient care?
I) Never
II) Once
III) 2-5times
IV) More than 5 times

10) Have you ever witnessed one of your collegues experianced any distraction or negative medical consequence because of smartphone usuage during anesthetized patient care?
I) Never
II) Once
III) 2-5times
IV) More than 5 times

11) Which of the following smartphone usage methods might result a distraction or negative medical consequence because of smartphone usuage during anesthetized patient care?(more than one choice can be opted)
I) Phone calls
II) Social media
III) Surfing internet
IV) Messages
V) Playing games

12) Do you think smart phone usage should be restricted in operating theatres?
I) Yes, it should be restricted
II) No need for restriction
III) Partly(used ly for communication)

13) Have you ever been warned by your seniors or surgical teanm because ofsmartphone usage during patient care?
I) No
II) Yes, once
III) Yes 2-5times
IV) Yes more than 5 times

14) Is there any anesthesia related application on your phone?
I) Yes
II) No

DISCUSSION:

The present study has shown that the prevalence of smart phone usage was 85.7%. The purpose of smart phone usage in increasing order of their frequency was internet surfing, phone calls, Messaging and usage of social media. Only 3.8% of the study participants were playing games. All the participants who used smart phone for playing belonged to age less 40 years. Similarly, a study done by Pinar HU et al[3] showed a much higher prevalence of smart phone usage among the anesthetists. (93.7%). Smartphone usage result in increased reaction time, decreased focus and reduced behavioural performance during cognitive tasks.

The present study has shown that majority of the study participants (39%) had never experienced any distraction because of the smart phone usage, nevertheless 44.8% had noticed their colleagues in distracted situation more than twice. Similar report has been noted by a study done in Turkey.[3] This incongruity could be because of their inability to notice the negative issues. Majority of the study participants in the present study has stated that gaming and internet surfing could result in distraction than the other purpose.

As the negative impact have not been recorded from the records in the present study, it is difficult to ascertain the distraction. Domino KB and Sessler DI reported that adverse outcome during the surgery were instigated by operation theatre distractions. The reported distractions were calls, hearing music.[7] Slagle JM and Weinger MB[8] has defined intra-operative care as "hours of boredom punctured moments of terror". They reported that the smart phone usage helps in passing the boredom hours and might also pave the way for distraction.

The major limitation of the study is that the outcome and negative medical issues in the surgeries attended by the participants couldn't be recorded and the other distracting events like equipment and ambient noise where not included.

Conclusion:

Smart phones though have a more optimistic usage, it is being emerged as a potential distractor for patient care can never be ignored. Specific guidelines in the usage and restriction of smart phone usage should be constructed and followed upon.

References:

1. Lippi G, Plebani M. Laboratory applications for smartphones: risk or opportunity?. Clin Chem. 2011;4:273-4.
2. Franko OI, Tirrell TF. Smartphone app use among medical providers in ACGME training programs. J Med Syst. 2012;36:3135-9.
3. Pýnar HU, Karaca O, Doðan R, Konuk ÜM. Smartphone use habits of anesthesia providers during anesthetized patient care: a survey from Turkey. BMC Anesthesiol. 2015;16:1-7.
4. Majumder S, Deen MJ. Smartphone sensors for health monitoring and diagnosis. J. Sens. 2019;19:2164.
5. Jorm CM, O'Sullivan G. Laptops and smartphones in the operating theatre--how does our knowledge of vigilance, multi-tasking and anaesthetist performance help us in our approach to this new distraction?. Anaesth. Intensive care. 2012;40:71-9.
6. Perkins EJ, Edelman DA, Brewster DJ. Smartphone use and perceptions of their benefit and detriment within Australian anaesthetic practice. Anaesth. Intensive Care. 2020;48:366-72.
7. Domino KB, Sessler DI. Internet use during anesthesia care: does it matter?. Anesthesiology. 2012;117:1156-8.
8. Slagle JM, Weinger MB. Effects of intraoperative reading on vigilance and workload during anesthesia care in an academic medical center. Anesthesiology. 2009;110:275-83.