
Effect of Smart Phone on Nursing Staff Performance in Intensive Care Units

Islam Safwat Gomaa Amr¹, Sahar Mohamed Morsy², & Hanaa Mohamed Ahmed³

¹ Instructor of Nursing Administration Department, Faculty of Nursing, Assiut University, Egypt.

² Professor of Nursing Administration, Faculty of Nursing, Assiut University, Egypt.

³ Assistant Professor of Nursing Administration, Faculty of Nursing, Assiut University, Egypt.

Abstract

Smartphone use in the health care settings increased, and there is limited research on the clinical use of these devices by nurses. **Aim:** Assess effect of smart phone on nursing staff performance in Intensive Care Units at Assiut University Hospitals. **Design:** Descriptive, correlational design was used. **Setting:** The study was conducted at Intensive Care Units at Assiut University Hospitals No. = (3 hospitals). **Subject:** the present study includes a convenient number of nursing staff working in intensive care units at Assiut University Hospitals. (No. = 125). **Methods:** The data were collected by using I- self-administered questionnaire including, Personal data sheet & Smart phone questionnaire. II- Performance observation checklist. **Results:** There were low positive effects of smart phone on nursing staff (63.2%), around half of them reported that, they had low perception regarding smart phone applications at work place (42.4%). The majority (92%) of nursing staff were unsatisfied regarding the use of smart phone. **Conclusion:** The majority of the nursing staff had low perception regarding the smart phone application. Smart phone had low positive effects on them. Almost all of them had unsatisfactory performance as regarding smart phone use. **Recommendations:** Establish policies to control uses of smart phone among nursing staff at intensive care units. And Provide training program on the appropriate use of smartphones in the clinical setting.

Keywords: *Nursing staff performance, Nursing staff perception & Smartphone.*

Introduction

The use of smartphones by nurses during work hours could both help them and distract them. Despite the widespread use of smartphones in healthcare settings, little is known about how nurses really use them in practice. It is unknown how often and why nurses are using their personal smartphones to support their work. The technological grounds of many healthcare organizations have grown to assist the work of healthcare professionals. However, a lot of nurses use their own electronic devices, like smartphone, for both personal and work purposes when they are at work. (Jong, et al., 2020). The proportion of healthcare personnel who own smartphones has been rising quickly. Due to the prevalent on-board processing capability, large memories, wide screens, and open operating systems that stimulate application creation, smartphones are the most recent inventions which increasingly perceived as handheld computers rather than phones. (Falaki, et al., 2019). The ability to carry a mobile device in one's hand or keep it in one's pocket makes it convenient to handle at the point of care and combines communication and computing features. (Hitti, et al., 2021). Nearly all elements of clinical practice, such as patient and provider interaction, clinical training tools, health record access, health care decision, and patient monitoring, have been fully included into its fast expanding capabilities and growing range of Smart

phone software applications (apps). (Alameddine, 2019). The nurse may be able to communicate educational information to their patients, such as information to helplines and sites on social media relevant to their diagnosis, through using their smartphone during working hours. (Bartels, et al., 2019). Personal mobile phones and other modern technologies could disrupt healthcare professionals from the attention required for patient care. (Neştian, et al., 2020). Excessive usage of smartphones by healthcare professionals is having an adverse impact on their performance, their work life, and their capability to concentrate on decision-making. This is a growing source of worry (especially patient care). This demonstrates the necessity of rules governing smartphone use in healthcare facilities. (Oviedo, 2019).

Significance of the study:

While the researchers reviewed the literatures found that, there were four international articles related to the topic published in professional journals, first on titled by "Smartphone distraction during nursing care" reported by Giannetta, et al., (2021), the second study showed by Altamimi, et al., (2021): Impact of Smartphone Usage on Healthcare Professionals in Saudi Arabia. Third one "Development and Effectiveness of a Smartphone Application for Clinical practice orientation" by Park, et al., (2021),

&last one showed by **Hitti, et al., (2021)**: Mobile device use among emergency department health care professionals. And there is only one National study “effect of mobile application intervention on health literacy regarding antenatal care during the covid19 pandemic” reported by **Hussein, et al., (2021)**.

The researchers during covid19 pandemic specifically noticed that, nursing staff in Intensive Care units use their smart phones for long periods during work time; therefore the researchers intended to study the “Effect of Smart Phone on Nursing Staff Performance. & there are no studies done at Upper Egypt about the topic.

Aim of the study: This study aimed to:

Assess effect of smart phone on nursing staff performance in Intensive Care Units at Assiut University Hospitals.

Research questions:

To fulfill the aim of the present study, the following questions are formulated:

Q1. What is the perception of nursing staff regarding Smart phone application in their clinical workplace?

Q2. What is the effect of using a smart phone on nursing staff performance?

Q3. Are there positive or negative effects of using of smart phone on nursing staff performance?

Q4. Is there a policy restrict or augment the use of smart phone in work place at Assiut University hospitals?

Research design:

Descriptive ,Correlational design was used in the present study.

Setting:

The present study was conducted in IntensiveCare Units at Assiut University Hospitals No. = (3 hospitals) which includes Main hospital (bed No. =1700), El-Rajhi Liver hospital (bed No. =200), and Heart hospital (bed No. = 240).

Subjects: The present study includes a convenient number of nursing staff working in intensive care units at Assiut University Hospitals. (No. = 125). Staff nurses (106) and head nurses (19).

Intensive Care Units	Staff Nurses	Head Nurses
El-Rajhi Intermediate care unit	14	2
El-Rajhi Intensive care unit	14	2
Trauma intensive care unit at Main Assiut University Hospital.	40	4
Anesthesia Intensive Care Unit at Main AssiutUniversity Hospital.	23	5
Heart hospital Intermediate care unit.	8	4
• Heart hospital coronary care unit (CCU).	7	2
Total	106	19

(2) Data Collection Tools: data collected by using: First Tool: Self-administered questionnaire: it includes three parts as the following

Part (I): Personal and job data for study subject:

It developed by the researcher, and was used to collect data about nursing staff include: gender, marital status, age, educational level, years of experience, smart phone using times during work, and smart phone using hours during work.

Part (II): Smart phone perception questionnaire

developed by the researchers after reviewed literature **Giannetta et al., (2021)** to assess the perception of nursing staff regarding smart phone application in work place. It includes 16 items classified into two factors, **Utilization of smart phone** (13 items), **Smart phone hospital policy** (3 items). The tool questions used a three points likert scale ranging from “(1) Never, (2) Sometimes, and (3) Always. **Scoring system, the score of the perception of nursing staff** ranged from 16 to 48 and was divided into three levels. If the nursing staff gets 16-28 it means low perception of nursing staff about smart phone, from 29-34 it means moderate perception of nursing staff, and from 35-48 it means high perception of nursing staff.

Part (III): Smart phone effect questionnaire

developed by the researchers after reviewed literature **Gutiérrez, et al, (2021)** To determine positive and negative effects of smart phone on nursing staff in work place. It includes 15 items classified into two factors, **Positive effects of Smart phone** (6 items), **Negative effects of Smart phone** (9 items). The tool questions used a three points likert scale ranging from “(1) Never, (2) Sometimes (3) Always. **Scoring system, The score of the positive effects of smart phone** ranged from 6 to 18 and was divided into three levels, If the nursing staff gets 6-11 it means low positive effect of smart phone on nursing staff, from 12-13 it means moderate positive effect of smart phone on nursing staff, and from 14-18 it means high positive effect of smart phone on nursing staff.

The score of the negative effects of smart phone

ranged from 9 to 27 and was divided into three levels, If the nursing staff gets 9-16 it means low negative effect of smart phone on nursing staff, from 17-19 it means moderate negative effect of smart phone on nursing staff, and from 20-27 it means high negative effect of smart phone on nursing staff.

Second Tool (II): Observational Performance Checklist:

developed by the researchers. It includes 25 items classified into four factors, **Utilization of smart phone** (7 items), **Smart phone application:** (11 items), **Communication** (4 items), **Education** (3 items). **Scoring system,** the responding scoring system was measured by (1) for done, and (0) for not

done. Less than 60% considered unsatisfactory performance, and more than 60% considered satisfactory performance.

Administrative design:

Official approval to carry out this study obtained from the Dean of Faculty of Nursing- Assiut University, Directors of Assuit university Hospitals, Nursing Director and head of each department to collect the necessary data.

Ethical considerations:

1. Research proposal approved from Ethical Committee at the Faculty of Nursing, Assiut University.
2. There is no risk for study participants during application of the research.
3. Oral agreement taken from the participants in the present study.
4. Study participants had the right to refuse or to participate and/or withdraw from the study without any rational at any time.
5. Confidentiality and anonymity were assured.
6. The study participants' privacy considered during collection of data.
7. The study followed common ethical principles in clinical research.

Operational design

The study was conducted throughout the following:

Preparatory phase:

- This phase took about three months from November 2021 to February 2022 to end the proposal of the study.
- After reviewed of the available literatures concerning the topic of the study, an Arabic translation of the study tools was done.
- Face validity of the study tools (Smart phone perception and effects questionnaire & Observational Performance Checklist) was done to assure accurate comprehension of the study tools. which done through (a jury expert opinions) composed of three professors from the Nursing Administration Department, one professor from community health nursing department, & one professor from of medical surgical nursing department. Faculty of Nursing, Assuit University. Also, content validity was checked and analyzed using confirmatory factor analysis test to assure (importance, clearness, and accountability of each items of the study tool) and its result was ≥ 1.8 for all items of the study tool (Organizational Synergies Scale), so all items in the study tool items was confirmed.

Pilot Study:

A pilot study was conducted in three days from 28-30/6/ 2022 on eight staff nurse and four head nurse which represent (10%) from total study participants to ensure the clarity, accessibility and understandability of

the study tools. The data obtained from the pilot study was analyzed and no changes were done for the study tools, then participants in the pilot study were included in studied sample.

The study tools were tested for its reliability by using Cronbach's Alpha Co- efficient test, it was ($\alpha = 0.799$) for smart phone perception and effects questionnaire, and it was ($\alpha = 0.812$) for Observational Performance Checklist tool. Thus indicates a high degree of reliability for the study tools.

Field work:

- The researchers met with each nurse in the study to explain the purpose of the study and to ask for participation. After obtaining verbal consent, the study tool was handled to the participated nurses to be filled through self- administered questionnaire to assess the effect of smart phone on nursing staff in work place. Each participant took about twenty minutes to fulfill the questionnaire.
- The observation checklist was filled by the researchers. The observation was done during the routine work of nurses. The researchers using direct observation checklist three times for each nurse during the six hours of the morning shift or the evening shift (approximately one hour and half for each member). The whole duration for data collection took about three months from July to septembere2022.

Statistical analysis

The data were tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by number and percent (N, %), where continuous variables described by mean and standard deviation (Mean, SD). Pearson correlation to appear the association between scores, univariate and multivariate linier regression used to determine the effect of smart phone on nursing staff performance in intensive care units at Assiut University Hospitals. A two-tailed $p < 0.05$ was considered statistically significant; all analyses were performed with the IBM SPSS 20.0 software

Results

Table (1): Percentage distribution of the personal data for Studied subjects (n=125)

Items	No (125)	% (100%)
Gender		
Male	17	13.6
Female	108	86.4
Marital Status		
Married	75	60.0
Single	50	40.0
Age of studied subjects		
20 <30 years	97	77.6
30 <40 years	21	16.8
40-50 years	7	5.6
Education level		
Nursing diploma	13	10.4
Nursing technical/health institute	79	63.2
Nursing Bachelor	33	26.4
Years of experience		
Less than 5 year	57	45.6
5 <15 year	46	36.8
15-30 year	22	17.6

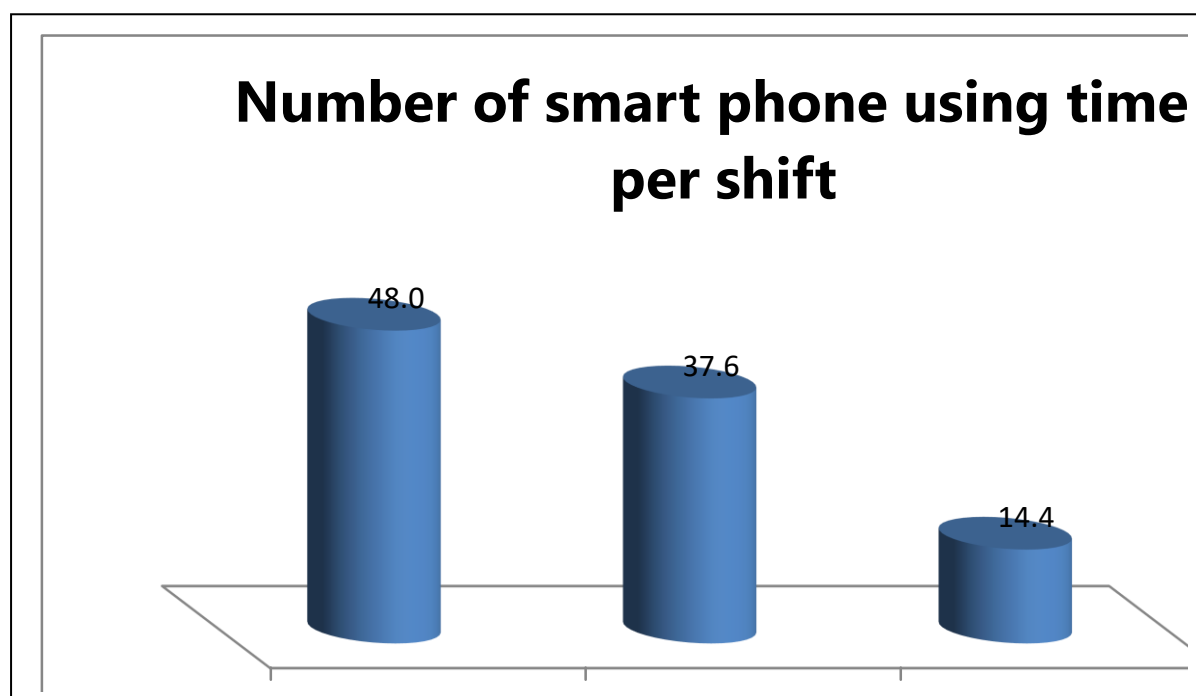


Figure (1): Distribution of the studied subjects' perception as regard number of smart phone using times (n=125):

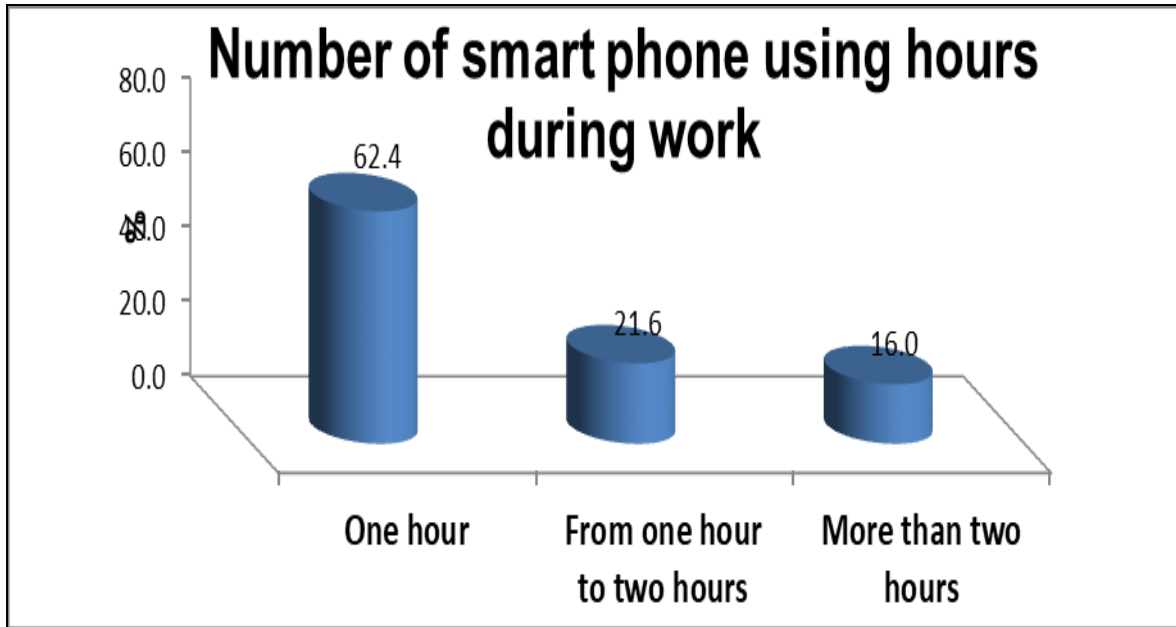


Figure (2): Distribution of the studied subjects perception as regard smart phone using hours during work (n=125)

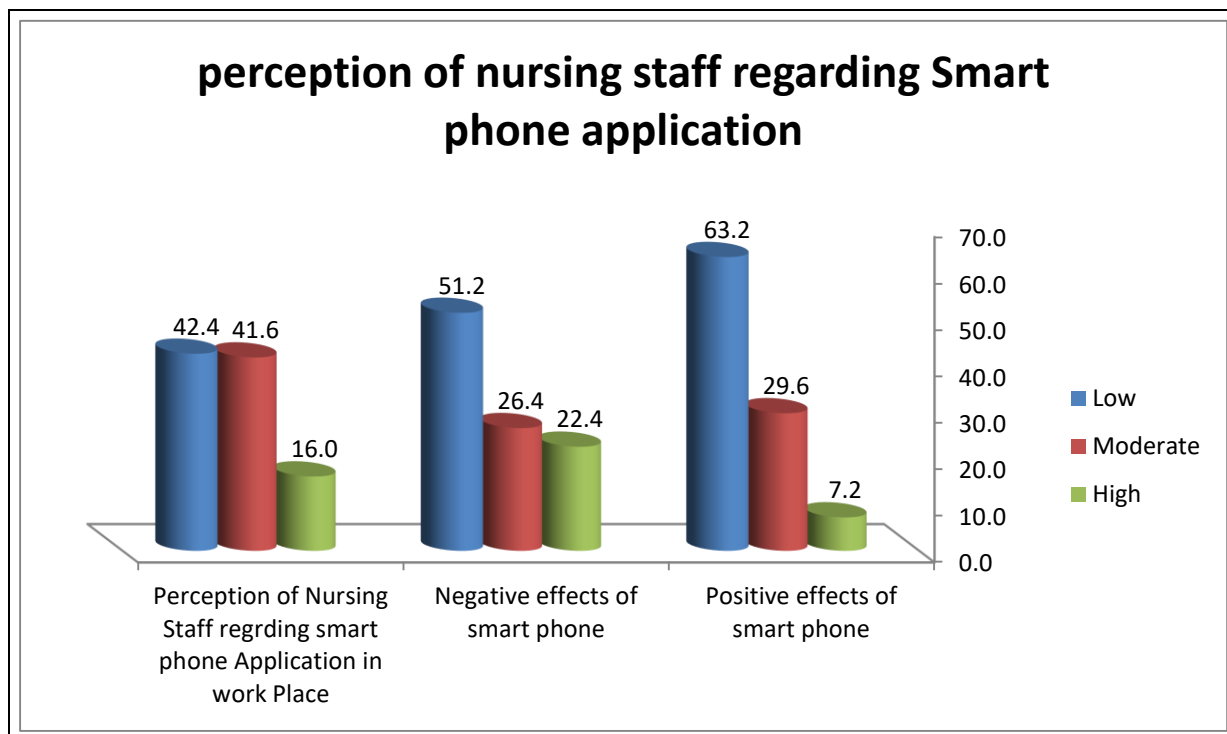


Figure (3): Distribution of nursing staff perception regarding Smart phone application (n=125)

Table (2): Percentage distribution of the studied subjects perception regarding the smart phone policies in workplace (n=125)

Smartphone policies	Never		sometimes		Always	
	No	%	No	%	No	%
There is a policy in the hospital that enhances /promotes smartphone use while working.	109	87.2	16	12.8	0	0.0
There is a policy in the hospital that prohibits/restricts smartphone use while working.	98	78.4	8	6.4	19	15.2
There is a policy in the hospital that supports monitoring the use of smartphones by nursing staff.	51	40.8	74	59.2	0	0.0

Table (3): Distribution of performance levels regarding smart phone (n=125)

Effect of smart phone on nurses' performance	Max Score	No	%
Unsatisfactory	<60%	115	92.0
Satisfactory	>60%	10	8.0
Mean \pm SD (range)	25	10.52 \pm 3.6(4-15)	

Table (4): Correlation between perception of nursing staff regarding Smart phone application and their performance (n=125)

Items	Perception of nursing staff	Positive effects of smart phone	Negative effects of smart phone	Nurses' performance regarding smart phone
1. Perception of nursing staff regarding smart phone Application in work Place	1			
2. Positive effects of smart phone.	0.073	1		
3. Negative effects of smart phone.	-0.154	-.211 [*]	1	
4. Nurses' performance regarding smart phone.	.471 ^{**}	.279 ^{**}	-.188 [*]	1

* Statistically Significant correlation at P. value <0.05

** Statistically Significant correlation at P. value <0.01

Table (1): Shows that the almost of study subjects are females, and around half of them are married, having a technical institution degree in nursing sciences, having experience less than 5 years (86.4%, 60%, 63.2%, 45.6%) respectively. Also, more than three quarters (77.6%) of study subjects aged 20 < 30 years old.

Figure (1): This figure shows that, around half of the study subject uses smart phone from time to less than five times per shift (48%).

Figure (2): This figure shows that, more than half of study subjects uses smart phone around one hour per shift (62.4%). Followed by (21.6%) of them use smart phone from one hour to two hours.

Figure (3): Shows that, 63.2% of study subjects responded that, there is low positive effects from smart phone on nursing staff, nearly half of study subjects responded that, there is low perception of Nursing Staff regarding smart phone application in work Place (42.4%).

Table (2): Shows that, all most of study subjects responses regarding perception of the smart phone policies: in workplace is never for following items (there is a policy in the hospital that enhance / promotes smartphone use while working and there is a policy in the hospital that prohibits/restricts smartphone use while working (87.2%, 78.4%) respectively.

Table (3): Shows that, performances of (92%) from nursing staff are unsatisfactory. And only 8% of nursing staff have satisfactory performance regarding smart phone.

Table (4): Shows that, there are a positive correlation and statistically significant between the following factors (perception of nursing staff regarding Smart phone application in work place and their performance and positive effects of smart phone and nursing staff performance regarding smart phone).

And there is a **negative correlation and statistically significant** between negative effects of smart phone and nursing staff performance regarding smart phone

Discussion

Smartphones have become life essentials, so there are growing concerns regarding impacts of smart phone on nurses' performance (Jong, et al 2020). Therefore, our study assessed the effect of smartphone on nursing staff performance in intensive care units, at Assiut University Hospitals. The present study began by seeking for an understanding of who the participants are personal data collected, such as the age, gender, level of education, and the years of experience. The results of the present study indicated that, the total number of nursing staff included was one hundred and twenty five, all of them owned smart phone, around two third of the studied subjects was female and more than half of the studied nurses ages ranged 20- 30 years, graduated from nursing / health technical institute and more than one third of them had less than five years of experience, found in table (1). This in the same line with Abolfotouh, et al, (2019) who stated that, in our study, almost all health providers owned one or more smartphones. And added that the younger age group was more engaged in smartphone use. As regards to positive effects of smart phone this study showed that, around two thirds of the studied subjects mentioned, smart phone sometimes reduce work stress and encourage patient care, found in figure. (3), which is in the same line with (Mistretta, et al, 2018) who stated that, A smartphone was helpful in lowering stress and burnout from emotional exhaustion. In the researchers point of view, while there are advantages to nurses utilizing smartphones for deliver patient care, smartphones can threaten patient safety when nurses are engrossed in using it. Nurses were distracted from giving patients the best care while they were using their personal smart phones for non-work-related activities. And although using a smartphone to relieve work-related stress may have been helpful, but it is unclear to what extent tension was relieved compared to any potential patient safety risks may occur by distraction. In the current study, the negative effects of smart phone, more than half of the studied subjects stated that, Smartphone sometimes increases clinical errors in clinical care and they experience distraction and memory problems due to smartphone use during work, found in figure. (3). which is consistent with the study finding of (Cho & Lee, 2020) who mentioned that, use of smart phone during work could result in undesired negative impacts on the quality and safety of patient care due to distractions and interruptions. The present study showed that, majority of the studied subjects were had low perception

regarding smart phone Application in work Place, found in figure no. (3). This match with Abolfotouh, et al, (2019) who reported that, Smartphone utilization for work related activities in healthcare facilities by health care workers is low. This could be attributed to their less than satisfactory level of perception towards its use. As regards smartphone policies, this study showed that, more than two third of studied subjects mentioned, there are no policies in hospitals that augment or restrict use of smart phone during work hours, found in table (2). This finding consistent with the study finding of (Bautista, 2022) who discussed that, there are unclear policies on the use of personal devices (e.g., the hospital does not allow smartphones at work, but nursing superiors allow their staff to use it). The present study findings are not consistent with Monti & Wacks (2020) who mentioned that, many hospitals had a blanket ban policy on mobile devices. In the researchers point of view, blanket ban policy did not deter nurse administrators' decision to allow staff nurses to use smartphones for work purposes because such policy was perceived to be unrealistic In general, because the absence of unit phones, and its credits, served as a reason for nurse administrators to allow staff nurses to use smartphones for work purposes. Similarly, when unit phones lack the necessary credits to be functional, nurse administrators have no choice but to allow their staff nurses to use their smartphones. Although the issue regarding the absence of unit phones is expected in most hospitals in developing countries. The current study found that, almost all of studied subjects had un satisfactory performance regard smart phone, found in table (3). This findings consistent with Gutiérrez, et al, (2021) who stated that, regarding problematic smartphone use among nursing professionals, the use of smartphones has been associated with a decrease in self-management skills and lower performance in the clinical setting, as well as the increase in fatigue, which may lead to poorer work performance and clinical errors, and thus, interfere with patient safety. Moreover, problematic smartphone use has been related to a decrease in clinical performance and delaying the main duties of professional nurses. Also in the same line with Abolfotouh, et al, (2019) showed that, beliefs of healthcare providers in smartphone use in terms of usefulness and practicality was less than satisfactory. The results of Fabio & Stracuzzi, (2022) Inconsistent with the present study findings, which are appointed that, an overwhelming majority of nurses revealed that, their work performance had never been negatively affected by their mobile phone use. The current study showed that, there is a statistical significant negative correlation between negative effects of smart phone and performance of

nursing staff, but there was a positive correlation between perception of nursing staff regarding smart phone application in work place and their performance. Also the results showed that there was a positive correlation between positive effects of smart phone and performance of nursing staff, found in table (4). In agreement of the present study **Gutiérrez, et al, (2021)** stated that, disruptions caused by smartphones have a negative impact in the clinical setting because they distract the nurses attention, negatively affecting the performance of the activity they are doing. This can cause them to overlook possible complications during techniques or procedures. And **Nabot, et al (2020)** found that, there was a positive relation among user's perception and attitude toward using of smartphone at work and their performance.

Conclusions

In the light of the study results, the following conclusion(s) can be drawn:

There were majority of the studied subjects had low knowledge regarding smart phone Application in work Place. And there were low positive effects from smart phone on nursing staff. Majority of studied subjects mentioned, there are no policies in hospitals that augment or restrict use of smart phone during work hours. There were unsatisfactory performance regarding smart phone. And there is a statistical significant negative correlation between negative effects of smart phone and performance of nursing staff, but there was a positive correlation between perception of nursing staff regarding smart phone application in work place and their performance. Also the results showed that there was a positive correlation between positive effects of smart phone and performance of nursing staff.

Recommendations

In light of results of this study, the following recommendation(s) are suggested:

- Carry out training program on the appropriate use of smartphones in the clinical setting to students and nursing professionals is essential in order to develop safe, professional and ethical practices.
- Establish policies to control uses of smart phone among nursing staff at intensive care units.
- Formulate new insights into nursing staff attitudes towards smartphone use and the impacts on performance.
- Create future studies focus on prevention strategies related to the negative impacts of smartphone usage in work place among nursing staff.
- Execute further study to answer the question of how personal mobile phones can be safely integrated into the work of hospital nurses.

References:

- **Abolfotouh, A., Mustafa B. & Salam, M. (2019):** Use of smartphone and perception towards the usefulness and practicality of its medical applications among healthcare workers. Available at: <https://doi.org/10.1186/s12913-019-4523-1>
- **Alameddine, M., Soueidan, H., Makki, M., & Hitti, E (2019):** The use of smart devices by care providers in emergency departments: cross-sectional survey design. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6592497/>
- **Altamimi, T., Khan, M. & Alex, J. (2021):** Impact of Smartphone Usage on Healthcare Professionals in Saudi Arabia. *International Journal of Medical Research & Health Sciences*, 10(2319-5886).
- **Bartels, J., van Vuuren, M., & Ouwkerk, J. (2019):** My colleagues are my friends: The role of Facebook contracts in employee identification. *Management Communication Quarterly*, 33(3), 307-328. Available at: <https://journals.sagepub.com/doi/pdf/10.1177/0893318919837944>
- **Bautista, J (2020):** Policy recommendations on nurses' use of smartphones in the Philippines. *International journal of medical informatics*. Available at: https://www.researchgate.net/publication/343614928_Policy_Recommendations_on_Nurses'_Use_of_Smartphones_in_the_Philippines
- **Cho, S., & Lee, E. (2020):** Distraction by smartphone use during clinical practice and opinions about smartphone restriction policies: A cross-sectional descriptive study of nursing students. *Nurse Education Today*, 40, 128–133. Available at: <https://doi.org/10.1016/j.nedt.2016.02.021>
- **Falaki, H., Mahajan, R., Kandula, & Estrin, D. (2019):** Diversity in smartphone usage. In *Proceedings of the 8th international conference on Mobile systems, applications, and services* (pp. 179-194).
- **Fabio, R., & Stracuzzi, A. (2022):** Theories on Addiction of Smartphone and Internet. Available at: <https://encyclopedia.pub/entry/2439>
- **Giannetta, N., Muziob, M. & Russo, C. (2021):** Smartphone distraction during nursing care. *Science direct*, [online] 58. Available at: <https://www.sciencedirect.com/>
- **Gutiérrez V., Gutiérrez L., Aguilera G., & Márquez, V(2021):** Nursing Students' Perceptions of Smartphone Use in the Clinical Care and Safety of Hospitalised Patients. *International journal of environmental research and public health*. Available at: <https://doi.org/10.3390/ijerph18031307>

- **Hitti, E Hadid, D & Melki, J. (2021):** Mobile device use among emergency department healthcare professionals: prevalence, utilization and attitudes. Available at: <https://mobius.md/2019/07/31/best-practices-for-smartphones-in-healthcare>
- **Hussein Ahmed, S., Ali, H., Shalaby, N., & Elbahlowan, G. (2021):** Effect of Mobile Application Intervention on Health Literacy Regarding Antenatal Care among Primigravida Women during the COVID 19 Pandemic. *Assiut Scientific Nursing Journal*, 9(26.), 62-73. doi: 10.21608/asnj.2021.96789.1237
- **Jong, A., Donelle, L., & Kerr, M. (2020):** Nurses' Use of Personal Smartphone Technology in the Workplace: Scoping Review. *JMIR mHealth and uHealth*, 8(11), e18774. Available at: <https://doi.org/10.2196/18774>
- **Mistretta, E., Davis, M., & Stonnington, C. (2018):** Resilience Training for Work-Related Stress Among Health Care Workers: Results of a Randomized Clinical Trial Comparing In-Person and Smartphone-Delivered Interventions. *Journal of occupational and environmental medicine*, 60(6), 559–568. Available at: <https://doi.org/10.1097/JOM.0000000000001285>
- **Monti, A., & Wacks, R. (2020):** COVID-19 and Public Policy in the Digital Age. Taylor & Francis. Available at: <https://www.perlego.com/book/2039029/covid19-and-public-policy-in-the-digital-age-pdf>
- **Nabot, A., Omar, F., & Almousa, M.M. (2020):** Perceptions of Smartphone Users Acceptance and Adoption of Mobile Commerce (MC) The Case of Jordan. Available at: <https://arxiv.org/abs/2101.01401>
- **Neșțian, A., Tiță, S., & Turnea, E. (2020):** Using Mobile Phones at Work in Personal and Professional Information Processes. Available at: <https://www.mdpi.com/2071-1050/12/3/965>
- **Oviedo (2019):** “Problematic use of mobile phones in Australia is it getting worse” *Frontiers in Psychiatry*, Vol. 10, p. 105. Available at: <https://www.frontiersin.org/articles/10.3389/fpsy.2019.00105/full>
- **Park, J., Sook, Y., & Hoon, J. (2021):** Development and Effectiveness of a Smartphone Application for Clinical Practice Orientation. *International Journal of Internet, Broadcasting and Communication*, [online] 13. Available at: <https://www.koreascience.or.kr/article/JAKO202110463368708.pag>