

Significance of Smartphone Utilization and Nurses' Perception in Clinical Setting: A Cross-Sectional Study

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ABSTRACT

Background: Smartphones are increasingly integrated into clinical practice and can facilitate professional communication, access to clinical information, medication-related searches, and other workplace activities; however, their use may also raise concerns regarding distraction, confidentiality, infection risk, and inappropriate personal use. **Objective:** To explore the significance of smartphone utilization and nurses' perceptions regarding smartphone use in clinical settings. **Methods:** A descriptive cross-sectional study was conducted among 342 registered nurses working at Mayo Hospital Lahore and Services Hospital Lahore, Pakistan. Participants were recruited using convenience sampling and completed an adopted questionnaire comprising sociodemographic characteristics, 10 smartphone-utilization and attitude items, and 15 workplace-perception statements. Data were analyzed descriptively using frequencies, percentages, means, and standard deviations. **Results:** Among 342 participants, 288 (84.2%) were female, 224 (65.5%) held a BSc Nursing qualification, and 290 (84.8%) reported professional use as their primary reason for smartphone use during clinical practice. The mean composite attitude score was 29.50 ± 5.10 out of 50, corresponding to a mean percentage score of $59.00 \pm 10.21\%$. Most participants agreed that smartphone functions such as chat and email contributed to more efficient work (89.2%), while 70.2% reported using smartphones to obtain medication-related information or calculate doses. At the same time, 71.3% supported policies restricting smartphone use during patient care or rounds, 61.4% perceived smartphone handling followed by contact with the face or patient as a potential infection source, and 73.1% considered unproductive smartphone use harmful to organizational performance. The mean composite perception score was 25.18 ± 2.74 out of 30, corresponding to $83.92 \pm 9.13\%$ on the transformed percentage scale. **Conclusion:** Nurses reported substantial professional use of smartphones and generally favorable perceptions of their usefulness for communication, information access, and clinical activities, while simultaneously recognizing concerns related to distraction, infection, personal use, and organizational performance. These findings support a balanced institutional approach in which legitimate professional smartphone use is retained while clear policies address patient-care, confidentiality, infection-control, and workplace boundaries. **Keywords:** Clinical Practice; Nursing Perception; Patient Safety; Smartphone Utilization; Work Efficiency

INTRODUCTION

Smartphones have become increasingly integrated into healthcare environments, where their portability, connectivity, and multifunctionality allow healthcare professionals to access information and communicate during clinical work. In nursing practice, smartphones can facilitate communication among healthcare professionals, support access to clinical information, and provide convenient digital resources at the point of care. Nursing students and nurses have also demonstrated increasing acceptance of smartphone-based information systems as part of contemporary clinical practice (1). Similar patterns have been reported among healthcare professionals more broadly, with smartphones and mobile applications being used for communication, clinical information retrieval, professional education, and other healthcare-related activities (2).

Mobile technology also has an important educational role in nursing. Smartphones provide access to digital learning materials, healthcare applications, drug information, clinical procedures, and other resources that may support professional learning and knowledge acquisition (3). In workplace settings, personal smartphone technology has increasingly been incorporated into nurses' routine activities, although patterns of use vary according to professional needs, organizational context, and availability of institutional digital systems (4). Consequently, smartphones cannot be considered exclusively personal communication devices in contemporary healthcare; they may also function as clinical information and communication tools.

Despite these potential benefits, smartphone use in clinical environments raises concerns regarding distraction, inappropriate personal use, patient confidentiality, infection control, and interference with professional responsibilities. Unregulated smartphone use has been associated with concerns regarding nursing performance, communication, and patient-care activities (5). Nursing students have similarly expressed concerns about the possible effects of smartphone use on attention, privacy, and the safety of hospitalized patients (6). Mobile devices may also act as contaminated surfaces in healthcare environments, emphasizing the need to consider infection-prevention practices alongside their professional benefits (7). These competing advantages and risks highlight the importance of understanding how nurses actually use smartphones and how they perceive their role in clinical practice.

International evidence demonstrates considerable variation in nurses' experiences with mobile technologies. Among practical nurses in Finland, greater experience with mobile electronic health record and client information systems was associated with perceived work-time savings, suggesting potential workflow benefits of appropriately integrated mobile systems (8). An Australian survey found that 108 of 158 nurses (68.4%) reported using at least one mobile health application, while 83 (52.5%) used mobile health applications for clinical purposes (9). A multicenter Italian study likewise identified both perceived benefits and concerns related to smartphone use, including communication and information access alongside distraction, infection risk, and patient-safety considerations (10). Smartphone-related distraction has also been examined among surgical nurses, with evidence indicating a relationship between distraction and tendency toward medical errors (11).

Evidence from other healthcare systems further suggests that access to mobile technology does not necessarily translate into routine clinical use. A study among nurses in southeastern Iran reported substantial ownership of mobile phones but limited use of mobile health applications for patient care, with barriers affecting adoption (12). Organizational approaches therefore remain important. Research from the Philippines has emphasized the need for balanced institutional policies that preserve legitimate professional uses while addressing inappropriate personal use and related risks (13). These findings indicate that the clinical value of smartphones depends not only on device availability but also on professional behavior, organizational expectations, and appropriate regulation.

Evidence specifically examining smartphone utilization among practicing nurses in Pakistan remains limited. A Pakistani study involving undergraduate nursing students reported a substantial frequency of smartphone addiction, but its population and research question differed from workplace smartphone utilization among registered nurses (14). Consequently, there remains a need for context-specific evidence describing how nurses working in Pakistani hospitals use smartphones during clinical practice and how they perceive their professional benefits, potential disadvantages, and regulation.

The present study therefore aimed to explore the significance of smartphone utilization and nurses' perception regarding the use of smartphones in clinical settings. Specifically, the study examined patterns of smartphone utilization during clinical practice, nurses' responses to professional and personal smartphone-use situations, and their perceptions regarding efficiency, communication, distraction, infection risk, and regulation of smartphone use in the workplace.

MATERIALS AND METHODS

Study Design and Setting

A descriptive cross-sectional study was conducted to explore smartphone utilization and nurses' perceptions regarding smartphone use in clinical settings. Cross-sectional studies assess characteristics or outcomes within a defined population at a particular period and are appropriate for describing patterns and perceptions without establishing temporal or causal relationships (15). The study was conducted among registered nurses working at Mayo Hospital Lahore and Services Hospital Lahore, Pakistan, in collaboration with Saida Waheed FMH College of Nursing. The study duration was six months following approval of the synopsis by the institutional synopsis review committee.

Study Population and Eligibility Criteria

The target population comprised registered nurses working in clinical departments of the participating tertiary-care hospitals. Nurses aged 22–60 years, of either sex, with at least six months of professional experience and possession of a smartphone were eligible for participation. Nurse managers and administrative personnel were excluded. Nurses who were planning to take leave during the data-collection period were also excluded.

Sample Size

The source population was reported as 2,360 nurses, comprising 1,525 nurses from Mayo Hospital and 835 nurses from Services Hospital. The required sample was calculated using the formula:

$$n = N / [1 + N(e^2)]$$

where n represents the required sample size, N represents the source population, and e represents the specified margin of error. Using N = 2,360 and e = 0.05:

$$n = 2360 / [1 + 2360(0.05^2)] = 2360 / 6.9 \approx 342.$$

Accordingly, 342 nurses were included in the study.

Sampling and Recruitment

Participants were recruited using convenience sampling, a non-probability sampling approach in which eligible participants are selected on the basis of accessibility (16). Registered nurses meeting the eligibility criteria were approached across morning, evening, and night shifts in the participating hospitals. Because convenience rather than probability sampling was used, the sample should be interpreted as representing the participating nurses rather than as a probability-based estimate of all nurses working in Lahore or Pakistan.

Data Collection Instrument

Data were collected using a printed questionnaire adopted from Gaur et al. (17). The questionnaire comprised three components. The first component collected sociodemographic and professional information, including age, sex, place of residence, professional qualification, work experience, clinical working area, presence of medical applications on the participant's smartphone, and the reported primary reason for smartphone use during clinical practice.

The second component contained 10 items assessing smartphone utilization and attitudes during clinical work. Responses were recorded using five ordered categories: never, rarely, sometimes, often, and always. Items addressed communication and coordination, searching for drug information and clinical references, medication-dose calculation, communication involving patient information, personal smartphone use, smartphone use during patient rounds, and smartphone-related distraction.

The third component contained 15 statements examining nurses' perceptions of smartphone use in the workplace, with responses recorded as agree or disagree. These statements addressed perceived work

efficiency, need for institutional regulation, psychological attachment to smartphones, distraction during patient care, non-work use during long shifts, medication-related information seeking, perceived safety and relaxation, possible infection risk, restrictions during working hours, organizational performance, communication, and institutional smartphone-use policies (17).

Data Collection Procedure

Data collection commenced after institutional ethical approval and permission from the nursing administration of the participating hospitals. Eligible nurses were informed about the purpose of the study and invited to participate voluntarily. The questionnaire was distributed in printed form. Participants were informed that their responses would remain anonymous and confidential and that they could withdraw from participation at any stage. All 342 distributed and completed questionnaires included in the study were available for analysis, corresponding to the reported 100% response rate.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 27. Categorical variables and individual questionnaire responses were summarized using frequencies and percentages. Composite attitude and perception scores generated in the study analysis were summarized using means, standard deviations, and observed minimum and maximum values. Because the study was descriptive, no causal interpretation was made and no inferential association between demographic characteristics and smartphone-use outcomes was assumed.

Ethical Considerations

The study was conducted in accordance with the ethical principles described in the Declaration of Helsinki. Approval was obtained from the Institutional Ethical Review Committee of the FMH system before data collection. Written informed consent was obtained from participants. Participation was voluntary, confidentiality and privacy were maintained, and participants retained the right to withdraw from the study.

RESULTS

A total of 342 registered nurses completed the study questionnaire and were included in the analysis. Results are presented descriptively according to participants' sociodemographic and professional characteristics, smartphone-utilization responses, and perceptions regarding smartphone use in the clinical workplace.

Participant Characteristics

Most participants were younger than 30 years (196/342, 57.3%), followed by those aged 31–40 years (117/342, 34.2%). Females constituted 288 (84.2%) participants. Most participants held a BSc Nursing qualification (224, 65.5%), and the largest work-experience category was 1–3 years (125, 36.5%). HDU/ICU was the most frequently represented clinical area (107, 31.3%). Medical applications were present on the smartphones of 205 (59.9%) nurses. When asked about the primary reason for smartphone use during clinical practice, 290 (84.8%) reported professional use and 52 (15.2%) reported personal use.

Table 1. Sociodemographic and professional characteristics of participants (N = 342)

Characteristic	n	%
Age		
<30 years	196	57.3
31–40 years	117	34.2
>40 years	29	8.5
Sex		
Male	54	15.7
Female	288	84.2
Place of residence		

Characteristic	n	%
Urban	196	57.3
Semi-urban	109	31.9
Rural	37	10.8
Professional qualification		
GNM	93	27.2
BSc Nursing	224	65.5
MSc Nursing or above	25	7.3
Work experience		
<1 year	40	11.7
1–3 years	125	36.5
3–6 years	89	26.0
>6 years	88	25.7
Clinical working area		
General ward	77	22.5
HDU/ICU	107	31.3
Trauma/Emergency	45	13.2
Specialized units	67	19.6
Operating theatre	23	6.7
Other area	23	6.7
Medical application installed on smartphone		
Yes	205	59.9
No	137	40.1
Primary reported reason for smartphone use during clinical practice		
Personal use	52	15.2
Professional use	290	84.8

Smartphone Utilization and Attitude Responses

Patterns of smartphone utilization varied across individual clinical situations. Communication and coordination with healthcare providers were reported as occurring sometimes by 134 (39.2%) nurses. Internet searching for drug-related information was reported sometimes by 121 (35.4%) and often by 109 (31.9%). For medication-dose calculation, 90 (26.3%) reported always using a smartphone for this purpose and 76 (22.2%) reported doing so often.

Communication containing patient-related information through smartphone messages or email was reported often by 96 (28.1%) and always by 77 (22.5%) participants. Personal smartphone use during clinical hours was reported rarely by 120 (35.1%) and sometimes by 111 (32.5%). During patient rounds, however, 136 (39.8%) reported never answering or making calls or sending messages or emails, while another 107 (31.3%) reported doing so rarely.

Table 2. Smartphone-utilization and attitude responses among nurses (N = 342)

Item	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
Smartphone used for communication and coordination with healthcare providers	15 (4.4)	78 (22.8)	134 (39.2)	50 (14.6)	65 (19.0)
Internet accessed for drug-related information	7 (2.0)	43 (12.6)	121 (35.4)	109 (31.9)	62 (18.1)
Smartphone use perceived to improve patient care and safety	27 (7.9)	56 (16.4)	126 (36.8)	84 (24.6)	49 (14.3)
Smartphone used as a medication-dose calculator	35 (10.2)	42 (12.3)	99 (28.9)	76 (22.2)	90 (26.3)
Smartphone used to send messages/emails containing patient information	15 (4.4)	59 (17.3)	95 (27.8)	96 (28.1)	77 (22.5)
Internet searched for clinical references	11 (3.2)	59 (17.3)	114 (33.3)	96 (28.1)	62 (18.1)
Smartphone used for personal matters during clinical hours	27 (7.9)	120 (35.1)	111 (32.5)	59 (17.3)	25 (7.3)
Calls/messages/emails made or answered during patient rounds	136 (39.8)	107 (31.3)	73 (21.3)	20 (5.8)	6 (1.8)
Distacted by colleagues' smartphone use during patient care/rounds	79 (23.1)	166 (48.5)	65 (19.0)	20 (5.8)	12 (3.5)
Missed important clinical information because of smartphone distraction	74 (21.6)	133 (38.9)	107 (31.3)	18 (5.3)	10 (2.9)

Regarding distraction, 166 (48.5%) nurses reported that they were rarely distracted by colleagues' smartphone use during patient care or rounds, while 79 (23.1%) reported never experiencing this

situation. Similarly, 133 (38.9%) reported rarely missing important clinical information because of smartphone distraction and 74 (21.6%) reported never doing so.

The mean composite attitude score was 29.50 ± 5.10 , with an observed range of 10–50. When expressed on the percentage scale reported in the original analysis, the mean was $59.00 \pm 10.21\%$, with a range of 20–100%. These values describe the distribution of the composite score and should not be interpreted as the percentage of participants classified as having a positive attitude.

Table 3. Composite smartphone-attitude score (N = 342)

Measure	Mean $\pm$ SD	Minimum	Maximum
Attitude score	29.50 ± 5.10	10	50
Attitude score, %	59.00 ± 10.21	20	100

Nurses' Perceptions Regarding Smartphone Use

Most nurses agreed that smartphone functions such as chat and email could contribute to more efficient work (305, 89.2%), and 277 (81.0%) considered smartphones a useful option for maintaining contact with patients, colleagues, and supervisors. In addition, 240 (70.2%) agreed that they had used smartphones to look up unfamiliar medications, administration information, or dose calculations.

Participants also expressed substantial support for regulation of smartphone use. A total of 244 (71.3%) agreed that policies were needed to restrict smartphone use during patient care or rounds, 239 (69.9%) agreed that measures should regulate smartphone use, and 260 (76.0%) supported employer implementation of a smartphone-use policy during working hours. Furthermore, 257 (75.1%) agreed that personal phone calls should be restricted to break or lunchtime.

Table 4. Nurses' perceptions regarding smartphone utilization at the workplace (N = 342)

Statement	Disagree n (%)	Agree n (%)
Smartphone opportunities such as chat and email contribute to more efficient work	37 (10.8)	305 (89.2)
Policies are needed regarding restricted smartphone use during patient care or rounds	98 (28.7)	244 (71.3)
Forgetting my smartphone makes me feel that I am missing something	123 (36.0)	219 (64.0)
Frequently looking at my smartphone disturbs me during patient care	174 (50.9)	168 (49.1)
During long shifts, smartphone use for purposes other than work is sometimes necessary	152 (44.4)	190 (55.6)
I have used a smartphone to look up unfamiliar medications, administration information, or calculate doses	102 (29.8)	240 (70.2)
Having my smartphone with me makes me feel safer and more relaxed	141 (41.2)	201 (58.8)
Touching a smartphone and subsequently touching the face or patient can be a source of infection	132 (38.6)	210 (61.4)
Measures should be taken to regulate smartphone use	103 (30.1)	239 (69.9)
I should switch off my smartphone during working hours	143 (41.8)	199 (58.2)
A strict employer ban on smartphone use would negatively affect my morale	121 (35.4)	221 (64.6)
Smartphone is the best option for keeping in touch with patients, colleagues, and supervisors	65 (19.0)	277 (81.0)
Unproductive smartphone use during working hours is harmful to organizational performance	92 (26.9)	250 (73.1)
Personal phone calls should be limited to break and lunchtime	85 (24.9)	257 (75.1)
Employers should implement a smartphone-use policy during working hours	82 (24.0)	260 (76.0)

Table 5. Composite smartphone-perception score (N = 342)

Measure	Mean $\pm$ SD	Minimum	Maximum
Perception score	25.18 ± 2.74	15	30
Perception score, %	83.92 ± 9.13	50	100

Perceptions also reflected potential disadvantages of smartphone use. A total of 168 (49.1%) agreed that repeatedly looking at a smartphone could disturb them during patient care, while 210 (61.4%) agreed that touching a smartphone and subsequently touching the face or patient could represent a source of infection. Unproductive smartphone use during working hours was considered harmful to organizational performance by 250 (73.1%) nurses. At the same time, 219 (64.0%) agreed that forgetting their smartphone made them feel as though something was missing, and 201 (58.8%) reported that

having the smartphone with them made them feel safer or more relaxed. A strict employer ban was perceived as having a negative effect on morale by 221 (64.6%) participants.

The mean composite perception score was 25.18 ± 2.74 , with an observed range of 15–30. The corresponding percentage score reported in the original analysis was $83.92 \pm 9.13\%$, ranging from 50% to 100%. This value represents the mean transformed composite score rather than the proportion of participants meeting a categorical threshold.

DISCUSSION

The present study explored smartphone utilization and nurses' perceptions of smartphone use in two tertiary-care hospitals and identified a pattern in which professional utility coexisted with concerns about inappropriate or unregulated use. Most participants reported professional rather than personal use as their primary reason for using smartphones during clinical practice, and the item-level responses demonstrated use for communication, drug-information retrieval, clinical references, and medication-dose calculation. At the same time, participants acknowledged issues relating to personal use, distraction, infection risk, organizational performance, and the need for workplace regulation. Importantly, the composite attitude and perception results represent mean scores rather than proportions of nurses classified into positive or negative categories; therefore, interpretation should focus on the observed scores and item-level distributions rather than unsupported categorical prevalence estimates.

The predominance of professional smartphone use in the present sample is consistent with the expanding role of mobile technology in clinical nursing environments. Previous evidence has described personal smartphones as tools used by nurses for clinical communication and access to workplace information, although the extent and purpose of use vary according to organizational context (4). Studies involving practical nurses and nurses using mobile health applications have similarly demonstrated that mobile technologies can support access to electronic information and clinical resources and may be perceived as useful for workflow-related activities (8,9). Bautista also emphasized that smartphones have legitimate professional functions in nursing while requiring institutional strategies that distinguish appropriate clinical use from potentially disruptive personal use (13). The present findings therefore support viewing smartphone utilization as a multidimensional workplace behavior rather than simply as personal device use.

A substantial proportion of participants used smartphones to search for drug information, clinical references, and medication-dose information. These findings are relevant because healthcare professionals increasingly use smartphone applications and internet-based resources to obtain clinical information at the point of care (2). Mobile medication-related tools have also been developed specifically to support dose-calculation requirements among nurses, illustrating the practical potential of structured digital resources in medication-related activities (18). Nevertheless, the current study measured self-reported utilization and perceptions rather than medication-error rates, calculation accuracy, or objective patient outcomes. Consequently, the findings indicate that nurses perceive and use smartphones as information-support tools but do not establish that smartphone use itself improves medication safety or clinical outcomes.

Personal smartphone use and distraction remained important findings. Although 84.8% of participants identified professional use as their primary reason for smartphone use during clinical practice, item-level responses showed that personal use still occurred at varying frequencies. Most participants reported never or rarely making or answering calls, messages, or emails during patient rounds, and most reported never or rarely being distracted by colleagues' smartphones. Nevertheless, a proportion of nurses reported occasional or more frequent distraction, and some reported missing clinical information because of smartphone distraction. Previous literature has similarly identified the coexistence of professional and non-work-related smartphone activities in nursing environments (4,6), while research among surgical nurses has demonstrated an association between smartphone-related distraction and

medical-error tendency (11). Because the present study was descriptive and cross-sectional, it cannot determine whether smartphone exposure caused distraction or affected actual error rates.

The finding that some participants reported transmitting patient-related information through smartphone messages or emails warrants particular attention. Smartphones may facilitate rapid professional communication, but transmission of patient identifiers through personal or inadequately governed communication channels raises potential confidentiality and data-governance concerns. Reviews of nurses' workplace smartphone use have emphasized the need to balance accessibility and communication benefits against professional, privacy, and organizational risks (4). Policy-oriented research has similarly recommended clear institutional guidance concerning acceptable smartphone practices in clinical settings (13). The current finding should therefore be interpreted as evidence of a workplace practice requiring governance rather than as an unqualified indicator of improved communication efficiency.

Participants generally perceived smartphones as useful for communication and work-related efficiency. Most agreed that smartphone-based communication opportunities contributed to more efficient work, and a large majority considered smartphones useful for maintaining contact with patients, colleagues, and supervisors. These perceptions are compatible with earlier evidence describing mobile technologies as potentially useful tools for professional communication and access to healthcare information (2,4,8). However, perceived usefulness should be distinguished from objectively demonstrated improvements in efficiency, patient outcomes, or clinical safety. The present design measured nurses' reported perceptions and behaviors and was not designed to quantify workflow duration, productivity, patient satisfaction, or clinical outcomes.

Support for institutional regulation was one of the clearest findings. More than two-thirds of participants supported policies restricting smartphone use during patient care or rounds and measures to regulate workplace use, while three-quarters supported limiting personal calls to break or lunchtime and implementing an employer smartphone-use policy. These findings closely reflect recommendations from previous nursing research advocating practical policies that preserve legitimate clinical functions while reducing non-work-related or disruptive use (13). Workplace research has also demonstrated that personal smartphone use can interact with work-life boundaries and organizational behavior, further supporting the need for proportionate rather than purely prohibitive approaches to smartphone governance (20). Institutional policies should therefore differentiate professional clinical activities from personal use and address communication, privacy, patient-care boundaries, and appropriate use during rounds.

Infection risk was another important concern. In the present study, 61.4% of nurses agreed that touching a smartphone and subsequently touching their face or a patient could represent a source of infection. This perception is supported by evidence documenting bacterial contamination of mobile devices used in nursing practice and highlighting the potential role of smartphones as contaminated surfaces within healthcare environments (7). The current study did not microbiologically examine participants' devices and therefore cannot estimate actual contamination or transmission rates. Nevertheless, the finding indicates substantial awareness among nurses of infection-control concerns associated with smartphone handling and supports the inclusion of device hygiene within institutional smartphone-use guidance.

The findings also demonstrated an element of psychological attachment to smartphones. Almost two-thirds of participants reported feeling that something was missing when they forgot their smartphone, and more than half stated that having the device with them made them feel safer or more relaxed. Smartphone use among healthcare professionals has previously been discussed in relation to behavioral dependence and the increasing integration of mobile devices into both personal and professional activities (19). These responses should not be interpreted as evidence of smartphone addiction because the present study did not administer a validated addiction diagnostic measure. Rather, they indicate

perceived reliance on and emotional comfort associated with smartphone availability, which may influence how restrictive workplace policies are received.

An apparent tension was also observed between nurses' perceived dependence on smartphones and their support for regulation. While 64.6% believed that a strict employer ban would negatively affect morale, 76.0% supported implementation of an employer policy governing smartphone use. This distinction suggests that participants may favor regulated professional access rather than complete prohibition. Such an interpretation is consistent with policy recommendations advocating balanced institutional approaches to smartphone use in nursing environments (13) and with broader workplace evidence concerning personal smartphone use and employee work-life boundaries (20). Policies that clearly distinguish clinically appropriate use from personal or distracting activities may therefore be more compatible with nurses' reported preferences than universal bans.

Several strengths and limitations should be considered when interpreting these findings. The study included 342 nurses from two major tertiary-care hospitals and captured participants from different clinical areas and work-experience categories. However, convenience sampling limits representativeness, and the findings should not be generalized automatically to nurses working in other hospitals, private institutions, rural facilities, or different healthcare systems. Cross-sectional data cannot establish temporality or causation (15), while reliance on self-reported responses creates the possibility of recall and social-desirability bias. The study also did not objectively measure smartphone screen time, clinical performance, medication errors, patient outcomes, microbial contamination, or organizational productivity. In addition, the reported analysis was descriptive and did not test associations between demographic characteristics and smartphone-utilization outcomes; consequently, differences according to age, qualification, experience, or clinical area should not be inferred from these results.

The findings nevertheless have practical relevance for nursing administration and clinical governance. Smartphones appear to be embedded in the professional activities of many participating nurses, particularly for communication and information access, but their use is accompanied by concerns regarding distraction, infection, confidentiality, and personal activities during working hours. Previous policy-focused evidence similarly supports institutional strategies that retain legitimate clinical benefits while defining appropriate boundaries for workplace smartphone use (13). Future research could strengthen this evidence through probability-based multicenter sampling, objective measures of smartphone utilization, assessment of clinical and patient-safety outcomes, qualitative exploration of nurses' experiences, and evaluation of institutional smartphone policies.

CONCLUSION

Smartphone use was commonly reported as a professional activity among nurses working in the participating tertiary-care hospitals, particularly for communication, clinical information retrieval, drug-related searches, and medication-dose calculation. The mean attitude and perception scores indicated generally favorable responses toward smartphone utilization, but these composite values should not be interpreted as the proportions of nurses with categorically positive attitudes or good perceptions. Participants simultaneously recognized potential disadvantages, including distraction, infection risk, inappropriate personal use, confidentiality concerns, and adverse organizational consequences, and substantial proportions supported institutional regulation. The findings therefore favor a balanced approach in which smartphones are permitted for legitimate professional purposes within clearly defined policies addressing patient care, privacy, infection control, personal use, and professional conduct. Because the study was descriptive, cross-sectional, self-reported, and based on convenience sampling from two hospitals, the findings describe nurses' reported practices and perceptions but do not demonstrate causal effects on patient safety, clinical performance, or healthcare outcomes.

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