

PATIENTS ATTITUDE TOWARDS, THE USE OF MOBILE PHONE BY RADIOGRAPHERS DURING TRANSVAGINAL ULTRASOUND

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ABSTRACT: Background: Ultrasonography is one of the most important radiological investigations that have positively improved the quality of diagnosis and outcome of medical care over the years. The wide acceptance of this technique is due to its safety, availability and acceptability by the practitioners as well as the end user.

Aim: The aim of this study is to Assess the patient attitude towards the use of mobile phone by radiographers during transvaginal ultrasound examination.

Materials and methods: This study was a prospective cross-sectional study conducted at Olive Medical Diagnostic and Research Centre, Onitsha, from July to September 2024. Two hundred (n=200) patients who gave their consent were conveniently sampled. A structured questionnaire developed in line with the objectives of this research was used to collect the data. The data obtained were analysed on SPSS version 21.

Results: based on the Evaluation of The Patients Attitude Towards the Use of Mobile Phones During the Transvaginal Ultrasound Examination the result showed that 65 (32.5%) of the respondents strongly agree that it is acceptable for radiographers to use mobile phones during transvaginal ultrasound procedure while 27 (13.5%) somewhat disagree while 32 (16%) strongly disagree. 90 (45%) think that the use of mobile phones would distract the radiographer during the procedure while 110(55%) do not think so. Based on the Evaluation of the Patients Feeling During the Transvaginal Ultrasound the result showed that 41 (20.5%) of the respondents think that the use of a mobile phone could compromise your privacy during the procedure, 14 (7%) do not think that way while 145 (72.5%) are not sure. 76 (38%) think it negatively impact while 103 (51.5%) think it has no impact

Conclusion: Majority of women in Onitsha are willing to accept TVS with preference to without the use of mobile phone neither by male or female radiographer. TVS was perceived to be safe by few of the women while the uptake of TVS was poor. We recommend that there should be continuous health education of women on the uses and safety of TVS in the management of most gynaecological conditions.

1. Introduction

Ultrasonography is one of the most important radiological investigations that have positively improved the quality of diagnosis and outcome of medical care over the years. The wide acceptance of this technique is due to its safety, availability and acceptability by the practitioners as well as the end user [1]. Traditional trans-abdominal ultrasound (TAS) has been the method of ultrasonographic evaluation of the pelvis and abdomen. Transvaginal ultrasonography (TVS) was introduced into medical practice almost three decades ago for both gynaecological and obstetric evaluation of patients [2]. This relatively invasive procedure was introduced to overcome the pitfall of TAS in the evaluation of the pelvic structures.

Transvaginal ultrasonographic evaluation is now the emerging preferred method world over for female pelvic ultrasonographic assessment, because the pelvic organs are closer to the endocavity vaginal probe and are better visualised. Moreover, the deterioration of image quality by bowel gas, obesity, retroverted uterus and the mandatory discomforting

full bladder requirement all associated with the transabdominal method are eliminated [3]. Many studies documented from research done in the developed countries, showed acceptability of TVS among women for myriads of indications to range from 43% to 96% [4 and 5]. There are few studies in the literature done to look at acceptability of TVS in Nigeria, and all were within the same Ibadan axis in the Southwestern part of the Country. [6], documented 99.7% acceptability rate, while Atalabiet all documented 84% willingness of women to do TVS. One major advantage of TVS over TAS is the reduction in the delay in diagnosis of some gynaecological emergencies like ectopic pregnancy and evaluation of early pregnancies for congenital anomalies. This will lead to reduction of complications which could result in maternal mortality and ultimately promote maternal and child health.

The penetration and usage of mobile devices is increasing globally, with growing penetration into the healthcare sector. A previous survey indicated that 87% of health care providers report using some form of portable network-enabled electronic device such as smartphones in the workplace, paralleling the rapid growth in health care apps, which is now the third fastest-growing app category on the market [7]. Mobile devices are generally considered to be of value to patients and providers in the form of speed of information transmission, clinical decision making, and accessibility [7 and 8], however, little is known about patient perceptions of health care providers' usage of mobile devices in a health care setting. Physicians, both senior and those in training, regularly use mobile devices to access medical apps (eg, drug guides, medical calculators), capture work-related images, respond to bleeps, communicate with their teams, and request diagnostics, among other uses [9 and 8]. In addition, mobile devices increase provider accessibility, improve communication, and help promote collegiality among the health care delivery team [9]. The usage of mobile devices in health care settings is not a passing trend but rather a practice that is now highly integrated into the work culture, which is likely to expand and grow in the future [10]. Despite these advantages, there are concerns about the regular use of mobile devices in health care settings, including the potential of jeopardizing the privacy of patient information, interfering with patient devices (eg, electromagnetic resonance), as well as cross-contaminating patient care areas [11 and 12]. Furthermore, there is a potential impact of such distraction on clinical care, especially in high-risk areas such as the emergency department characterized by a high cognitive load and regular interruptions. Such distraction potential has serious safety implications, including the risk that physicians

and residents will miss vital patient information [11 and 13]. In fact, approximately 41% of health care providers at the American University of Beirut Medical Center (Beirut, Lebanon) reported distraction by nonwork-related use of mobile devices [14]. There is a growing body of literature on the safety implications of the usage of mobile devices and the so-called “inattention blindness” associated with their use. However, few studies have directly investigated patient perceptions of their providers’ usage of mobile devices in health care settings or the impact of such use on the physician-patient relationship. Studies that have examined the effect of mobile device usage on interpersonal relations showed that the presence of mobile devices in a social setting negatively affects the quality of conversations, extent of satisfaction with a social encounter, as well as the level of empathy and connection [15 and 16]. Several studies have explored patient attitudes toward health technology and their impact on the patient-provider relationship. However, these studies have been limited to the use of computers in the consultation room [16], tablets in the examination room and telerounding [17 and 18], mobile phone images in wound care [19 and 20], personal digital assistants in emergency departments [21], and personalized smart bedside stations in an inpatient setting [22]. In general, most patients did not express a negative attitude toward their physicians’ use of such technology [17, 21 and 23] and did not feel that their interaction with their care provider was less personal due to the use of the technology [17]. However, these findings cannot be extrapolated to the usage of mobile devices for several reasons, including the mobility of such devices, their strong distracting potential, association with the users’ wider social network even when not actively being used, and accumulating evidence on their negative impact on empathy and quality of interactions.

Focused assessments of patient attitudes toward their health care providers’ use of mobile devices in health care settings is of importance [15 and 16], especially in the context of the emergency department. This is because the nature of work in the emergency department poses specific challenges for both safety and relationship building, which is characterized by high volumes, short interactions, and frequent interruptions [24]. Conclusively, understanding patient perspectives in this setting can guide policy and practice recommendations that will help address patient concerns and preserve the patient-provider relationship as mobile device adoption in health care continues to rise.

2. Materials and methods

Research Design

A prospective cross-sectional survey was adopted for this research. A prospective study is a research design where participants are recruited and followed forward in time, Exposure or risk factors are measured at the beginning of the study. Whereas outcomes or end points are measured at the later time.

Study Area

This research was conducted at Olive Medical Diagnostic and Research Centre, Onitsha,

Target population

The research targeted all women who had undergone transvaginal sonography in the selected centers within Onitsha from June to August 2024

Sample Technique

A randomized sampling technique was used for this study

Sample size

The sample size was arrived at by using the Infinite formula which states:

$$n = (Z^2 \cdot \sigma^2) / E^2$$

n= Sample size

E= Margin of error (desire level of precision)

σ = (population standard deviation)

Z= Z- score corresponding to desired confidence level (95% Confidence)

For a sample size of n=200

i.e Z=1.96 (95% Confidence)

$$\hat{d}=10$$

$$n= 200$$

substituting the value in equation above:

$$n= (1.96^2*10^2) /2^2$$

$$n=384.16 / 4$$

$$n\approx 96.04$$

To overcome the effect of attrition from the minimum sample size, we increased the sample size to 200

Inclusion criteria

All women of child bearing age from 18 years and above who have undergone transvaginal sonography scan (TVS) in the selected centers were included in this study.

Exclusion criteria

Women who are not of child bearing age and those who have not undergone TVS were excluded from this study

Method of Data collection

The Sample was collected by means of well-structured questionnaire distributed by the sonographer to the women of child bearing age who underwent transvaginal sonography scan (TVS) in the center, after seeking their consent explaining the purpose of the study.

Method of Data Analysis

The data was analysed in the line with the objective of the study using Microdoft statistical software package for Social Science (SPSS) version 21 (IBM, USA, 2018) for both descriptive and correlational analysis.

3. Results

Table 1: Socio-Demographics Of Respondent

Variable	Response	Frequency	Percentage (%)
Age Group	21-30	98	49
	31-40	95	47.5
	41-50	5	2.5
	51 and above	2	1.0
	Mean±SD	37.71±5.310	
Gender	Female	200	100
	Male	0	0
Educational Level	Secondary school	120	60
	Tertiary	77	38.5
	Post Graduate	3	1.5
Total		200	100

Table 1: Shows that out of 200 respondents 49% are of the Age group 21-30 years, 47.5% are 31-40 years, 2.5% are 41-50years while 1% are 51 years and above. 100% of the respondents are females. 60% of the respondents attained secondary school educational level, 38.5% attained tertiary while 1.5% attained post graduate.

Table 2: Evaluation Of The Patients Attitude Towards The Use Of Mobile Phones During The Transvaginal Ultrasound Examination

Items	Response	Frequency	Percentage
Ever done transvaginal ultrasound before	Yes	198	99%
	No	2	1%
Do you think it is acceptable for radiographers to use mobile phones during transvaginal ultrasound procedures	Strongly agree	65	32.5%
	Somewhat agree	69	34.5
	Neutral	7	3.5
	Somewhat disagree	27	13.5
	Strongly disagree	32	16

How concerned are you about the use of mobile phones during procedure	Not concerned at all	49	24.5
	Extremely concerned	151	75.5
Do you think mobile phone use would distract the radiographer during the procedure	Yes	90	45%
	No	110	55%
Would you prefer a radiographer who uses a mobile phone during the procedure	Yes	85	42.5%
	No	115	57.5%

Table 2: Shows that 198(98%) of the respondents have done transvaginal ultrasound while 2(1%) have not done transvaginal ultrasound before. 65(32.5%) of the respondents strongly agree that it is acceptable for radiographers to use mobile phones during transvaginal ultrasound procedure, 69(34.5%) somewhat agree, 7(3.5%) are neutral, 27(13.5%) somewhat disagree while 32(16%) strongly disagree. 49(24.5%) are not concerned about the use of mobile phones during the procedure while 151(75.5%) are extremely concerned. 90(45%) think that the use of mobile phone would distract the radiographer during the procedure while 110(55%) do not think so. 85(42.5%) of the respondents would prefer a radiographer who uses a mobile phone during the procedure while 115(57.5%) would not.

Table 3: Evaluation Of The Patients Feeling During The Transvaginal Ultrasound

Items	Response	Frequency	Percentage
Do you think that the use of a mobile phone could compromise your privacy during the procedure?	Yes	41	20.5%
	No	14	7%
	Not sure	145	72.5%
How do you think the use of mobile phone by the radiographer could impact the overall experience of the ultrasound procedure	Positively	21	10.5%
	Negatively	76	38.0%
	No impact	103	51.5%

In your opinion, should there be guidelines or policies in place regarding the use of mobile phones by radiographers during ultrasound procedures	Yes	119	59.5%
	No	14	7%
	Not sure	67	33.5%
Overall, how do you feel about the use of mobile phones by radiographers during transvaginal ultrasound procedures?	Supportive	27	13.5%
	Neutral	105	52.5%
	Disapproving	68	34%
How comfortable would you feel knowing that the radiographer is using a mobile phone during the ultrasound procedure	Very comfortable	39	19.5%
	Uncomfortable	48	24.0%
	Neutral	17	8.5%
	Comfortable	50	25%
	Very comfortable	46	23%
Do you believe that the use of a mobile phone by the radiographer could affect the quality of the ultrasound images or the accuracy of the procedure?	Yes	55	27.5%
	No	13	6.5%
	Not sure	132	66%
How would you prefer the radiographer to communicate with you during the ultrasound procedure	Verbally, without the use of a mobile phone	105	52.5%
	Using a mobile phone if necessary	95	47.5%

Table 3: Shows that 41 (20.5%) of the respondents think that the use of a mobile phone could compromise your privacy during the procedure, 14 (7%) do not think that way while 145 (72.5%) are not sure. 21 (10.5%) think that the use of mobile phone by the radiographer positively impact on the overall experience of the ultrasound procedure, 76 (38%) thinks it

negatively impact while 103 (51.5%) thinks it has no impact. 119 (59.5%) are of the opinion that there should be guidelines or policies in place regarding the use of mobile phones by radiographers during ultrasound procedures, 14 (7%) are not of this opinion while 67 (33.5%) are not sure. 27 (13.5%) feel supportive about the use of mobile phones by radiographers during transvaginal ultrasound procedures, 105 (52.5%) have neutral feeling while 68 (34%) feels disapproving. 39 (19.5%) feels very comfortable knowing that the radiographer is using a mobile phone during the ultrasound procedure, 48(24%) feels uncomfortable, 17 (8.5%) have a neutral feeling, 50 (25%) feels comfortable while 46 (23%) feels very comfortable. 55 (27.5%) believe that the use of a mobile phone by the radiographer could affect the quality of the ultrasound images or accuracy of the procedure, 13 (6.5%) do not believe while 132 (66%) are not sure. 105 (52.5%) of the respondents prefer the radiographer to communicate with them verbally without the use of a mobile phone during the ultrasound procedure while 95(47.5%) prefer the radiographer using a mobile phone if necessary.

4. Discussion

A structured, pretested, interviewer administered questionnaire was the tool for data collection in this study. The 200 questionnaire was comprised of four sections. The first sections contained questions regarding socio-demographic characteristics. The second section of the questionnaire focus on patient that Have undergone transvaginal ultrasound before. The third section dealt with respondents acceptability for radiographers to use mobile phones during transvaginal ultrasound procedures while the fourth section assess the use of a mobile phone by the radiographer could compromise your privacy or confidentiality during the ultrasound procedure.

The result Showed that out of 200 respondents 49% are of the Age group 21-30 years, 47.5% are 31-40 years, 2.5% are 41-50years while 1% are 51 years and above. 100% of the respondents are females. 60% of the respondents attained secondary school educational level, 38.5% attained tertiary while 1.5% attained post graduate.

The result also Showed that 198(98%) of the respondents have done transvaginal ultrasound while 2 (1%) have not done transvaginal ultrasound before. 65 (32.5%) of the respondents strongly agree that it is acceptable for radiographers to use mobile phones

during transvaginal ultrasound procedure, 69 (34.5%) somewhat agree, 7 (3.5%) are neutral, 27 (13.5%) somewhat disagree while 32(16%) strongly disagree. 49 (24.5%) are not concerned about the use of mobile phones during the procedure while 151 (75.5%) are extremely concerned. 90(45%) think that the use of mobile phone would distract the radiographer during the procedure while 110 (55%) do not think so. 85(42.5%) of the respondents would prefer a radiographer who uses a mobile phone during the procedure while 115 (57.5%) would not, this was in line with the findings of [25] to investigate the Evaluation of the Patients' Perception Regarding Endocavitary Ultrasound Procedure.

The result also revealed that 41 (20.5%) of the respondents think that the use of a mobile phone could compromise your privacy during the procedure, 14 (7%) do not think that way while 145 (72.5) are not sure. 21 (10.5%) think that the use of mobile phone by the radiographer positively impact on the overall experience of the ultrasound procedure, 76 (38%) thinks it negatively impact while 103 (51.5%) thinks it has no impact, this corresponds with the work of [26] to investigate the perception, willingness to accept an uptake of transvaginal ultrasonography among women in benin city, Nigeria. 119 (59.5%) are of the opinion that there should be guidelines or policies in place regarding the use of mobile phones by radiographers during ultrasound procedures, 14 (7%) are not of this opinion while 67 (33.5%) are not sure. 27 (13.5%) feel supportive about the use of mobile phones by radiographers during transvaginal ultrasound procedures, 105 (52.5%) have neutral feeling while 68 (34%) feel disapproving. 39 (19.5%) feels very comfortable knowing that the radiographer is using a mobile phone during the ultrasound procedure, 48 (24%) feels uncomfortable, 17 (8.5%) have a neutral feeling, 50 (25%) feels comfortable while 46 (23%) feels very comfortable. 55 (27.5%) believe that the use of a mobile phone by the radiographer could affect the quality of the ultrasound images or accuracy of the procedure, 13 (6.5%) do not believe while 132 (66%) are not sure. 105 (52.5%) of the respondents prefer the radiographer to communicate with them verbally without the use of a mobile phone during the ultrasound procedure while 95 (47.5%) prefer the radiographer using a mobile phone if necessary, This corresponds with the findings of [27] to investigate The Patients' experience during vaginal examination and transvaginal ultrasound in a tertiary hospital in Singapore.

Conclusion

Based on this research work most respondents have positive attitude towards transvaginal ultrasound. Some respondents believe that the use of mobile phones by radiographers during transvaginal ultrasound will not comprise their privacy. Based on this work the use of mobile phones by radiographers should be based on emergency purposes.

Ethics approval and consent to participate

In accordance with the principles of the Declaration of Helsinki, the study protocol was reviewed and approved by an independent ethics committee of the faculty of health sciences and Technology, College of Health Sciences Nnamdi Azikiwe University Nigeria. Data was collected and analyzed to ensure the confidentiality and privacy of the participants' information.

Consent to participate: Written informed consent was obtained from the subjects before inclusion into the study.

Human rights statements and informed consent: Introduction/informed consent letter was obtained from Radiography department which was issued to all participants before being included in the study.

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Conflict of interest:

The authors declared no conflict of interest.

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Data availability: Available on reasonable request from the corresponding author, Daniel Chimuanya Ugwuanyi.

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