Assessment of Level of Anxiety and Pain: A Case Study of Mammographic Examination at University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria

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ABSTRACT

Assessment of level of anxiety and pain: A case study of mammographic examination at the University of Maiduguri Teaching Hospital helps to identify the causes of anxiety and pain among women presenting for mammography and to determine factors associated with anxiety and pain among the study group. A total number of thirty (30) questionnaires were administered to 30 women waiting to undergo mammography. The questionnaire consists of demographic data about the subjects with Likert scale of anxiety administered both before and after the procedure whereas visual analogue scale utilized after the examination to assess level of pain. Generally the study shows that nineteen participants (63.6%) were noted to have anxiety prior to the procedure as opposed to 11 (36.7%) who were free of anxiety before the procedure. In addition, there was reduction of anxiety to 50% after procedure with equal number of participants assessed to be free of anxiety post-procedure. Sixteen patients (86.7%) were assessed to have experienced various levels of pain after the procedure. The proportions of various levels of pain comprising mild, moderate, severe were 56.7%, 23.3% and 6.7% respectively. The study found a significant proportion of women with anxiety during mammography and an equally significant numbers experiencing pain related to the procedure. In addition, education had significant influence on the reasons for mammography (p Value 0.036) but it had no influence on benefits of mammography, pre-procedure anxiety, post-procedure anxiety and post-procedure pain as the p Values recorded were, 0.682, 0.422, 0.128 and 0.362 respectively.

INTRODUCTION

Mammography is a special type of x-rays imaging used to create detailed images of the breast; it plays a major role in detection of breast cancer. Mammography uses low dose x-rays and when doing mammography breast compression is necessary so that maximum amount of tissue is imaged and

examined. This plays a role on reducing radiation dose and immobilizing the breast. Furthermore compression also reduces x-ray scatter, which may degrade the image. However, compression is often accompanied with varying degrees of discomfort[9].

Report on the incidence of breast cancer reveals that one of every eight women in the world stand a chance of having the disease in her life time[3]. Although the incidence of breast cancer is increasing all over the world, the rate of increase is reportedly higher in developing countries where late detection of disease is common[26]. Breast cancer is already a well-known health problem in Nigeria with about 1 death in every 25 reported cases[23]. A major worry about breast cancer in Nigeria is the continuous rise in the number of cases and deaths[7]. It has been predicted that breast cancer cases may rise to 42 million by 2020 in males and females in the country[17]. Breast cancers typically produce no symptom when the tumour is small and most easily treated. Therefore, it is very important for women to follow recommended screening guidelines for detecting breast cancer at an early stage. Randomized controlled

screening trials suggest that mammography reduces the risk of dying from breast cancer by about 20%, whereas studies of modern mammography screening program in Europe and Canada found that the risk of breast cancer death in women exposed to screening was reduced by more than 40 %[3].

A review article on genetic and other vulnerability factors for anxiety and stress disorders states that anxiety disorders are developmental condition that often emerge during childhood taking different developmental trajectories. Anxiety disorders are associated with magnitude and demographic risk factors which are sex difference, age-specific patterns of expression, social class and ethnicity, and familial and genetic factors [16]. Pain is a complex experience that is not easily communicated, yet it is one of the most common reasons for health care seeking. It is the chief reason people take medication, and a leading cause of disability and hospitalization[1]. Furthermore, pain is subjective and highly individualized and its interpretation and meaning involve and cultural factors. In an article on nature and pain states that factors associated with pain are: cultural factors,

demographic factors, psychosocial/behavioural, and clinical factors[7]. Yilmaz and Kiymaz, 2010 demonstrated that women who underwent mammography for the first time have tendency to higher anxiety levels. In addition, offering information to women prior to the procedure was noted to decrease pain and anxiety. Although reasonable concern about breast cancer risk can encourage women to attend mammography screening, pathological anxiety can reduce the compliance with the screening mammography recommendations[27].

Therefore the aim of this study was to determine the level of anxiety and degree of pain among women undergoing mammography at University of Maiduguri Teaching Hospital. It is hoped that the outcome of the study will initiate strategies to overcome any potential anxiety and pain during the procedure of mammography for women in our environment.

MATERIALS AND METHODS
Study Design
A prospective cross sectional design was adopted for the study.

Source of Data
Primary source was utilised to collect data by direct interview.

Study Population
We enrolled 30 consecutive women presenting for mammographic examination at the University of Maiduguri Teaching Hospital from November, 2016 to April 2017 after giving consent to participate in the study.

Sample Size
Sample size calculation for cross sectional study to determine proportions (238) [8]

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Thirty women were recruited due to constraints of time and resources.

Inclusion Criteria
All women coming for mammography who consented to be part of the study were recruited at the radiology department for mammography examination.

Exclusion Criteria
All women who refused to consent for the study and those who decided to withdraw from the study before the completion of the questionnaire were excluded.
Instrument of Data Collection

Two semi-structured questionnaire were prepared comprising demographics data of the subject, Likert scale for anxiety determination and visual analogue scale for assessing pain.

Method of Data Collection

The questionnaires were administered to 30 consecutive women presenting for mammography. The Likert Scale was administered both before and after the procedure. Furthermore, a Hausa version of the Likert Scale for Anxiety was utilised to enhance communication. The visual analogue scale for pain was utilised after the procedure.

Study Duration

The study was carried out from November, 2016 to April, 2017

Analysis of Data

Recorded data was analysed using IBM SPSS version 21 statistical package. Tables were generated for demographic variables. The reliability of the variables of Likert Scale of Anxiety was determined by Cronbach's alpha coefficient. Descriptive statistics comprising of mean, frequency and percentage were recorded while inferential statistics were derived using Pearson Chi square.

RELIABILITY TEST

Cronbach's alpha (α) of 0.74 was obtained indicating adequate reliability to include the scale for analysis.

Ethical Considerations

Ethical clearance was obtained from the Ethical Committee of the University of Maiduguri Teaching Hospital, and permission to conduct was given by the Head of Department, Radiology UMTH

RESULTS

The study recruited 30 consecutive patients presenting for mammography at the Radiology Department of UMTH. The range of age of the respondents was between 33-98 years with mean and standard deviation of 48.07 and 12.96 respectively. Majority of the participants were in the range age between 33-64 age brackets. The proportions of patients as shown in Table 1 were as follows: 50.0% and 43.3% for 30-44 and 45-64 age brackets respectively.

The socio-demographics of the respondents as depicted in Table 2 revealed married women

comprising 83.3% and widows forming the remaining 16.7% of the recruited patients. Twenty-two (73.3%) of the respondents had tertiary educational level followed by none constituting 5 (16.7%) of the patients. The proportional distributions of ethnic groups were not significant.

Table 3 revealed that the majority of patients had no family history of breast disease as 73.3% confirmed no illness in their families. Substantial proportions of patients (33.3%) came for the procedure for screening purposes while the least in ascending were palpable mass (6.7%) and nipple discharge (13.3%). Furthermore the majority of patients knew the benefits of mammography (73.3% vs. 26.7%).

Nineteen participants (63.6%) were noted to have anxiety prior to the procedure as opposed to 11 (36.7%)

who were free of anxiety before the procedure. In addition, Table 4 revealed reduction of anxiety to 50% after procedure with equal number of participants assessed to be free of anxiety post-procedure. Sixteen patients (86.7%) were assessed to have experienced various levels of pain after the procedure. The proportions of various levels of pain comprising mild, moderate, severe were 56.7%, 23.3% and 6.7% respectively.

Table 5 shows the evaluations of various variables to the level of education of the respondents. Benefits of mammography, anxiety, pain revealed no significance while level of education appears to have impact on the knowledge of the reasons to have mammography.

Table 1: Age Distribution of Participants mean (SD) 48.07(12.96)

Age	N	%
30-44	13	43.3
45-64	15	50.0
.>65	2	6.7
Total	30	100.0

Table 2 Socio-demographics of the Respondents

Marital Status	N=30	%
Married	25	83.3
Widow	5	16.7
Religion		
Christianity	11	36.7
Islam	19	63.3
Educational Level		
Primary	2	6.7
Secondary	1	3.3
Tertiary	22	73.3
None	5	16.7
Ethnicity		
Babur	3	10.0
Kanuri	7	23.3
Marghi	6	20.0
Others	14	46.7

Table 3 Family History and Knowledge about Mammography

Breast Disease in Family	N=30	%
Yes	8	26.7
No	22	73.3
Reasons for Mammography		
Palpable mass	2	6.7
Nipple discharge	4	13.3
Screening	10	33.3
Others	14	46.7
Benefits of Mammography		
Yes	22	73.3
No	8	26.7

Table 4 Anxiety and Pain Levels among Participants

Pre-Procedure Anxiety	N=30	%
No anxiety	11	36.7
Mild anxiety	9	30.0
Moderate anxiety	9	30.0
Severe anxiety	1	3.3
Post-Procedure Anxiety		
No anxiety	15	50.0
Mild anxiety	10	33.3
Moderate anxiety	5	16.7
Severe anxiety	---	------
Post-Procedure Pain		
No pain	4	13.3
Mild pain	17	56.7
Moderate pain	7	23.3
Severe pain	2	6.7

Table 5 Significance of Education on Mammography, Anxiety and Pain

	p Value
Reasons for Mammography	0.036*
Benefits of Mammography	0.682
Pre-Procedure Anxiety	0.422
Post-Procedure Anxiety	0.128
Post-Procedure Pain	0.362

*Significant by Chi Square Test

DISCUSSION

The range of age of the respondents was between 33-98 years with mean and standard deviation of 48.07 and 12.96 respectively. Majority of the participants were in the range of age between 33-64 years. The socio-demographics of the respondents revealed married women comprising 83.3% and widows forming the remaining 16.7% of the recruited patients. Twenty-two (73.3%) of the respondents had tertiary educational level followed by none constituting 5 (16.7%) of the patients. The proportional distributions of ethnic groups were not significant.

Furthermore, most of the patients had no family history of breast disease as 73.3% confirmed no illness in their families. Substantial proportions of patients (33.3%)

came for the procedure for screening purposes while the least in ascending were palpable mass (6.7%) and nipple discharge (13.3%). Moreover, the majority of patients knew the benefits of mammography (73.3% vs. 26.7%).

Our results showed that 63.3% of the women experienced different level of anxiety from mild, moderate and severe before and after the examination. There's 50.0% reduction in anxiety after the procedure compared to pre-procedure which is 63.3%.

Majority of the women experienced different degrees of pain from mild, moderate to severe with a percentage of 89%. In addition, the levels of anxiety and degree of pains showed no significance difference with age, level of education and ethno-religious affiliations.

CONCLUSION
The study found a significant proportion of women with anxiety during mammography and an equally significant numbers experiencing pain related to the procedure. In addition, education had significant influence on the reasons for mammography (p Value 0.036) but it had no influence on

benefits of mammography, pre-procedure anxiety, post-procedure anxiety and post-procedure pain as the p Values recorded were, 0.682, 0.422, 0.128 and 0.362 respectively.

RECOMMENDATION
From the result of our study, the following recommendations are proposed:

1. Clinicians involved in performing mammography should counsel patients and demonstrate empathy to allay anxiety with the procedure and suggest coping strategies whatever the potential outcome of the result.

2. The General Electric Healthcare Sonographe Care (2010) mammography equipment possesses excellent image quality and ergonomic paddle design and rounded Bucky shape to help optimize patient comfort. The design allows for a pre-set maximum desired compression which slows when contacting the breast ultimately ensuring patient comfort. This novel equipment may ultimately reduce pain during mammography though a

randomized controlled trial is required to support the hypothesis[12].

3. We suggest expansion of the study to allow adequate sample size and time frame to enable acquisition of data for subsequent intervention studies on the issue of anxiety and pain in women undergoing mammography.

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