

Correlates of Anxiety Levels among Patients Undergoing Hysterosalpingography Assessment for Tubal Factor Infertility in Makurdi, Nigeria

Muhammad Hameed^{1*}, Labe Ransome Msughe², Utoo Bernard Terkimbi³, Jogo Andrea Avershima³

¹Department of Radiology, Benue State University Teaching Hospital, Makurdi, Nigeria; ²Department of Clinical Psychology, Federal Medical Centre, Makurdi, Nigeria; ³Department of Obstetrics and Gynaecology, Benue State University Teaching Hospital, Makurdi, Nigeria

Corresponding author:
Hameed Mohammad,
Department of Radiology, Benue State
University Teaching Hospital, Makurdi,
Nigeria,
Tel: +234-1-8777845;
E-mail: drhameed2001@yahoo.com

Abstract

Background: Hysterosalpingography is a specialized radiological procedure that is used to assess tubal patency for female factor infertility evaluation. Patients who come for this procedure are understood to have anxiety. **Aim:** To determine the levels of patient anxiety that will be necessary for pre-counselling before exposure to hysterosalpingography. To examine the significant difference between the patients' social demographic variables and levels of anxiety experienced. **Patients/Methods:** The study adopted a pre-test descriptive design to evaluate patient's levels of anxiety with the state-trait anxiety scale. A total of 109 women undergoing hysterosalpingography were drawn through a convenience sampling technique. **Results:** The results shows that women waiting for exposure to HSG experienced high levels of anxiety with the ($X=43.09$ and $SD=8.74$). However, there was no significant difference between the patients' social demographic variables measured and anxiety levels. **Conclusion:** extrapolating from these findings, there is the need for pre-counselling to relieve patient's anxiety before hysterosalpingography.

Keywords: Patients; Anxiety; Hysterosalpingography; Tubal infertility

Introduction

The pressure of socio-cultural beliefs, values and tradition have placed women in African societies on the precipice of joy and sorrow regarding necessity of child bearing. This is largely because of societal expectation of their role in reproduction. As a result of this, any difficulty in childbirth is blamed on the woman and this may lead to stigma, marital discord and divorce. As a result of this, no woman wishes to think or feel that she is infertile.^[1] The thought of infertility creates a high current of psychosocial conflict, loss of sense of worth, loss of honor and dignity in matrimony. Indeed the desire to have a child is shared by many couples around the world. This desire is an essential factor influencing survival of human species.^[1]

However, it is estimated that on the average, worldwide 10-15% of couples have problem of infertility. The developed countries are said to account for 10-15% and Sub-Saharan Africa 20-46%.^[2] In Nigeria, Panti and Sununu reported a prevalence of 15.7% in North western part of the country. This problem is associated with a great deal of stress, anxiety and financial burdens for those families.^[2] Nevertheless, the woman may be willing to pay the price, make sacrifices and experience degradation of exposure to screening of their genital tract by a health personnel. She is ready to endure pains and discomfort associated with a procedure like hysterosalpingography with the hope that the end will justify the means.

Anxiety is typically characterized by feelings of fear, worry

or apprehension. These are normal reactions to situations of perceived stress. Anxiety can become a clinical concern when the combination of stressful circumstances overwhelmed a person's ability and efforts to cope with those circumstances. Studies have shown that hysterosalpingography is associated with significant levels of anxiety.^[3] Tyrrel and Hale reported that a majority of patients knew why the examination was being performed. Although only 50% had received an explanation on the technique of the procedure prior to their arrival to the department, anxiety levels associated with the examination were high. This is not surprising, since high expectation, anticipation of pains, curiosity about the outcome may bring with it intense emotional distress.^[3]

Inadvertently, anxiety precipitated by unpredictable report from HSG brings about an additional cyclical problem. Agwu and Okoye studied women undergoing a hysterosalpingography procedure and 74% of those in the control group experienced increased blood pressure while 64% experienced increased heart rate.^[4] Other studies have shown that Women who undergo uncomfortable medical procedures experience some degree of reactive anxiety. They are concerned with anticipated pain,

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

How to Cite this Article: Mohammad H, et al. Correlates of Anxiety Levels among Patients Undergoing Hysterosalpingography Assessment for Tubal Factor Infertility in Makurdi, Nigeria. *Ann Med Health Sci Res.* 2017; 7: 66-69

embarrassment and discomfort. So, lack of knowledge of the procedure and of any opportunity to establish control as well as possible physical damage during the examination. The potential diagnostic and prognostic implications are also contributory factors for anxiety in this group of patients.^[5]

Hysterosalpingography examines the state of the uterus and the fallopian tubes to ascertain that the uterus and fallopian tubes has normal shape and the cavity is not affected by disease process such as; fibroids, polyps or scar tissue, tubal patency after tubal surgery, congenital anomalies or other lesions in patients with recurrent abortion etc.^[6,7]

HSG involves the use of an image intensifier called a Fluoroscopy and it is by means of this device that radiographic films are obtained when a small amount of contrast is passed via a cannula, filling the uterine cavity and then the Fallopian tubes. Spillage into the peritoneal cavity and any abnormalities in the uterine cavity or Fallopian tubes will be visible on a monitor.

There is paucity of data on the level of anxiety in patients' undergoing HSG and to the best of our knowledge no study of this nature has been done in our environment. It is against this backdrop that the study seeks to determine the correlates of anxiety levels among patients undergoing hysterosalpingography assessment for tubal factor infertility in Makurdi.

The objectives of the study are:

- To determine the levels of patient anxiety that will be necessary for pre-counselling before hysterosalpingography.
- To determine the significant difference between patients demographic variables and levels of anxiety.

Hypotheses:

- Women who presents for hysterosalpingraphy will experience considerable levels of anxiety.
- There will be significant difference between the patients' socio-demographic variables and levels of anxiety.

Method

Research design

The study adopted a pre-test descriptive design. Each patient booked for hysterosalpingography (HSG) procedure was asked to complete a State-Trait Anxiety questionnaire lasting about 10 minutes. The pre-test was intended to elicit information which can help to examine the participant's anxiety level before going into short session of the x-ray imaging (fluoroscopy).

Participants

A total of 109 adult females booked to receive HSG examinations took part in this study at Musahafa Imaging Centre at Wadata, Makurdi, Nigeria. The demographic characteristics of this sample selected using the convenient sampling technique include; marital status, parity, educational qualification, religion, ethnicity and age. The primary criteria for eligibility were:

- Females booked for HSG examination.
- Being a married or unmarried woman.
- Having the willingness and acceptance to be a participant in the study.

In view of the recognition of the ethical involvement in a research of this nature, major ethical practice steps were taken to protect the participant's rights and reputation as they volunteered to be used as sample in this study.

Firstly, each participant was briefed on the objectives and significance of the study. Secondly, each participant's consent was obtained as she is convinced.

They were informed that their names and other means of identity were not required and that the information provided will be treated with confidentiality and strictly for the purpose of the study.

They were also told that they had a right to withdraw consent prior and during the process of responding to the questionnaire. The use and handling of instrument will terminate and be destroyed after six months of successful completion of the study.

Instruments

The study adopted and used the State-Trait Anxiety Inventory developed by Spielberger, et al. to collect data from the participant.^[8] The questionnaire is divided into two sections with the first part consisting of demographic data of each patient. The second part contains 20 self-descriptive statements to which participants respond by noting the intensity of their reactions which a person rates on a scale of anxiety (from not at all 1, not much 2, much 3 and to 4 very much state of anxiety). According to Spielberger et al, higher scores of current stress, worrying, anxiety, and so forth represent greater state anxiety. In this study, a Nigeria standardized version of scale was used.^[9-11] It was found to be cultural free with a reliability of 0.77 and internal consistency as high as 0.98.^[12] The established norms for the Nigerian sample are presented in the Table 1 below.

Table 1: Means and standard deviation of test scores.

Sex	STAI (X-1)	STAI (X-2)
Male	X=45.92	46.67
N=60	SD=7.37	SD=6.65
Female	X=39.7	X=43.53
N=60	SD=8.25	SD=8.83

Procedure

The Nursing staff identified potential participants who met all inclusion criteria. The investigator met with potential participants, confirmed eligibility criteria. The participants were given explanation regarding the nature of the study, aims and objectives to obtain their consent. A consent letter was assigned and each participant was given the States Trait Anxiety Inventory (STAI-1) to complete.

Statistical analysis

Statistics was performed using the statistical package for social

sciences SPSS version 16 Software. Data was critically analyzed using the mean and standard deviation value to understand and interpret the findings.

Results

A total of 109 females took part in the study, but in the course of computation of data there was one observed missing system that led to the presentation of the statistics result on 108 questionnaires. The ages of the participants ranged between 21 to 40 years with the mean of 32.09 (SD: 5.14). Ninety two percent of the participants were married women while eight were unmarried. The percentage distribution of their demographic variables showed that 72 (67%) participants had higher education, 36 (33%) had lower education. Amongst those who were married, 77.2% had more than one child, while 22.8% did not have a child. The ethnic representation in the study include: Tiv, Idoma, Igbo, Berom, Hausa, Igede, Yala, and Obudu. Majority of these groups were Tiv (52%) and majority of the study population were Christians (97.2%).

The result is presented in tabulation and interpreted objectively in order to sustain the validity of the findings on the two hypotheses [Table 2].

Table 2: Analysis of the mean and standard deviation of patient's anxiety levels and Hysterosalpingography.

Variables	N	Minimum	Maximum	\bar{x}	SD
Anxiety	108	29.00	114.00	88.07	14.97
State anxiety	108	11.00	64.00	43.09	8.74
Trait anxiety	108	13.00	64.00	44.98	8.22

The results on Table 1 shows that the State anxiety levels of patients \bar{X} =43.09 and SD=8.74 imply that patients experienced high level of anxiety before undergoing hysterosalpingography.

The Table 3 represents the means and standard deviations of patient's states and trait anxiety levels. With emphasis on state anxiety scores, the findings shows that there is no significant difference between these patients' socio-demographic variables and experience of high levels of anxiety before HSG.

Table 3: Analysis of the means and standard deviation of patients' levels of anxiety and HSG on five socio-demographic variables.

Anxiety Variables	State anxiety			Trait anxiety		
	N	\bar{x}	SD	N	\bar{x}	SD
Age						
≥ 30	70	43.40	8.82	70	45.42	7.70
≤ 30	37	42.40	8.76	37	44.32	9.22
Marital status						
Single	8	45.50	9.08	8	43.87	1.83
Married	99	42.84	8.76	99	45.23	0.83
Parity						
1 child	21	44.95	8.92	21	45.90	7.52
No child	71	42.60	8.42	71	45.033	8.16
Religion*						
Christians	94	43.86	8.28	94	45.72	7.34

Islam	3	39.33	7.76	3	37.66	8.50
Education						
High	73	43.93	8.42	72	45.47	7.81
Low	36	42.57	7.21	26	45.76	6.85

Discussion

The purpose of the study was to investigate Correlates of anxiety levels among patients undergoing hysterosalpingography assessment for tubal infertility in Makurdi. In analysing the data and observing the means and standard deviation of state anxiety and trait anxiety it was found that patients who present for HSG experience significant higher levels of anxiety (P<0.05). This was premised on the fact that the level of state anxiety which was (\bar{X} =43.09, SD=8.74) and trait anxiety (\bar{X} =44.98, SD=8.22) scores were higher than those reported (\bar{X} =39.7, SD=8.25) score derived from a sample of 60 Nigerian women for restandardized version of scale.^[9-11] This has indicated a state of anxiety among women awaiting radiological examinations.

The second hypothesis which states that there will be significant difference in the variation of socio- demographic variables and patients' levels of anxiety was rejected. This was confirmed from the test scores of the mean and standard deviation on state anxiety of the patients' measured socio-demographic variables [Table 2]. Psychologically, anxiety is typically triggered by a combination of different degrees of stressors and the ability of the patient to react to the stressor is largely dependent on his or her positive or negative interpretation of their stimulus effect. By virtue of the findings of hypotheses 1 and 2, this study supports the report of previous studies that HSG is associated with high levels of anxiety. These findings were situated on observation that some of the participants awaiting HSG may have little knowledge and experience of the procedure. Yet, to some it may be due to a persistent negative feelings and thoughts that the outcome of HSG investigation will not be favorable. These views are consistent with those of Tyrel et al.^[3]

Furthermore, the current findings supported the report of Agwu and Okoye whose study showed that women who are to undergo hysterosalpingography procedure had elevated blood pressure in 74% of those in the control group, while 64% experienced increased heart rate.^[4] Similarly, a study by Aksoy et al. reported that radiological procedure of invasiveness positively and strongly predicts increase level of anxiety in women.^[5]

Notwithstanding the similarity of the results of five demographic variables measured such as marital status, educational background, parity and religion, in this study compared with other study, there was an observed variation of the findings regarding the women's age with findings of Aksoy et al.^[5] The factor of age which was positively correlated with experience of anxiety could not be confirmed. In this study, the findings show no significant difference between the patients' age and experience of anxiety before HSG. With reference to table 2, the state anxiety scores of (\bar{X} =43.40 and SD=8.82) of women above 30 years and the state anxiety scores (\bar{X} =42.40, SD=8.76) of

women less than 30 years imply that the age of women presenting for HSG does not show any statistical difference. In addition, findings on demographic variables such as level of education, cultural background, parity and religion were not found to be associated with the patients' experience of high levels of anxiety. This suggests that there could be other spurious factors that are responsible for the increased levels of anxiety in the women. These may include the woman's higher expectation, anticipated pains, worry and apprehension regarding negative feelings and thought that HSG as an investigative procedure on the integrity of the status of the tubes may not show a favorable outcome. This perceived unfavorable outcome is often interpreted by the women as a threat to their fertility status and inability to conceive in their life time. These thoughts and feelings are capable of inducing anxiety and depression.^[13]

Furthermore, the woman's concerned with anticipated pain, embarrassment and discomfort from the invasion of her private organ by the opposite sex other than the spouse or a suitor, lack of knowledge of the procedure and of any opportunity to establish control, possible physical damage during the examination, and potential diagnostic and prognostic implications cumulatively precipitate anxiety as found in several similar studies.^[5]

Conclusion

The study shows that women presenting for HSG have some level of anxiety. Hence, pre counseling and education should be done to relief or help patients understand the nitty-gritty of the HSG test, advantages and disadvantages so as to relief their anxiety.

This study did not assess the patient's vital signs before or after the administration of the anxiety scales to correlates the result of the statistical findings on the presence of anxiety amongst these women. Yet it is hoped that through a broader understanding of the precipitating factors of anxiety reactions before HSG, it is pertinent to address the patient's worries and fears before this particular procedure is carried out. Therefore, physicians, radiologists and nurses technicians should be prepared to

manage their clients by interviewing them to obtain useful information to provide expert support for these patients.

Conflict of Interest

All authors disclose that there was no conflict of interest.

References

1. Mikołajczyk M, Skrzypczak J, Szymanowski K, Wirstlein P. The assessment of LIF in uterine flushing – a possible new diagnostic tool in states of impaired fertility. *Reprod Biol*, 2003; 3: 259-270.
2. Panti AA, Sununu YT. The profile of infertility in a Teaching Hospital in North Western Nigeria, *Sahel Med J*, 2014; 17: 7-11.
3. Tyrrell PN, McHugo JM, Hale M. Patients' perception of the hysterosalpingogram: the initial stages of the audit cycle. *Br J Radiol*, 1993; 66: 103-107.
4. Agwu KK, Okoye IJ. The effect of music on the anxiety levels of patients undergoing hysterosalpingography. *Radiography*, 2005; 13: 122-125.
5. Aksoy FG, Zdemür A, Yavuz Y. Invasiveness of radiological procedures: State-trait anxiety in women undergoing 3 different investigations and 3 months follow-up. *Turk J Med Sci*, 2000; 30: 595-599.
6. Onifade B, Adelusi TM, Kolawole. Tubal patency in infertility in Ibadan, Nigeria. *Trop J Obstet Gynaecol*, 1978; 17: 19-21.
7. Anguissola R, D'Andrea F, Firullo A, Moro G, Paves M, Di-Maggio E, et al. Current role of hysteron-salpingography in the assessment of female infertility: review of a series of cases. *Radiol Med*, 1991; 82: 303-307.
8. Spielberger CD, Gorsuch RL, Lushene RE. *The state-trait anxiety inventory*. Palo Alto, California consulting psychologists Press, USA, 1968.
9. Awaritefe AA, Kadiri AU. Validation of the STAI in Nigeria subjects *IRCS Medical Science: Psychology and psychiatry, Social and Occupational Medicine*, 1991; 9: 419-420.
10. Jegede RO. Depression in Africa revisited: A critical review of the literature. *Am J Med Sci*, 1979; 8: 125-132.
11. Omoluabi PF. Predicting levels of Psychophysiological Indicators of Anxiety from Psychometric measures. In Uzoka A F. and Awaritefe, A. (Eds) *Mental Health Priorities in Nigeria*. (1986a).
12. Oladimeji BY. *Psychological assessment technique in health*. Obafemi Awolowo University Press Limited, Ife-Ife, Nigeria, 2005.
13. Sivaramkrishma KR. Role of HSG in female infertility investigation. *Journal Armed Forces India*, 1998; 44: 223-225.