

## Health-Seeking Activities of Women with Advanced Stages of Breast Cancer in Southwestern Nigeria: A Qualitative Study

Agatha Ogunkorode<sup>1\*</sup>, Lorraine Holtlander<sup>2</sup>, Linda Ferguson<sup>2</sup>, Johanna Lize Maree<sup>3</sup>, June Anonson<sup>2</sup> and Vivian, R. Ramsden<sup>4</sup>

<sup>1</sup>Department of Nursing, College of Medicine and Health Sciences, Afe Babalola University of Ado-Ekiti, Ekiti-State, Nigeria

<sup>2</sup>College of Nursing, University of Saskatchewan, Saskatoon, Canada

<sup>3</sup>Department of Nursing Education, School of Therapeutic Sciences, Faculty of Health Sciences, University of Witwatersrand, South Africa

<sup>4</sup>Department of Family Medicine, College of Medicine, University of Saskatchewan, Saskatoon, Canada

\*Corresponding author: ogunkorodeao@abuad.edu.ng

### ABSTRACT

Breast cancer is the most common cancer in women in both high-income and low-middle-income regions of the world. In low-income countries, breast cancer is the leading cause of cancer-related death in women. Empirical literature indicates that women with breast cancer in Nigeria present with advanced stages of the breast cancer thereby compromising the survival rate of the illness. The purpose of this paper is to present the outcome of a research study that explored the health-seeking behaviors of women with advanced breast cancer in Southwestern Nigeria, from the time they first noticed a breast abnormality till the time they presented for care in the hospital, from the participants' perspectives. The study participants were 30 women presenting with advanced stages of breast cancer in Southwestern Nigeria. The study was a qualitative study. The research methodological approach adopted for the study was Interpretive Description. Data were collected in two phases. Phase one consisted of participants filling a personal demographic information form; the second phase consisted of the conduct of audio-recorded one-on-one, semi-structured interviews by the researcher. Data analysis was inductive. All the participants were aware of their rights as study participants before the commencement of the study. Many participants did not interpret their breast changes as breast cancer, and they engaged in self-care until their symptoms had worsened. Some women engaged in seeking information about their breast changes from their families, internet, and social networks. Thematic analysis of the interview data revealed the women's health-seeking behaviors to include engaging in self-care, seeking divine intervention, and seeking evidence-based knowledge and care. The findings from this study suggest the need for a comprehensive community-based educational intervention to address the etiology, misconceptions, signs and symptoms of breast cancer, and the actions to take when breast changes are observed.

Keywords: Advanced stages of breast cancer, health-seeking behavior, health belief model, interpretive description, women, Southwestern Nigeria, Nigeria.

### INTRODUCTION

The most common malignancy in women globally is breast cancer [1]. In 2012, worldwide, 1.67 million new cases of breast cancer, accounting for 25% of all cancers were diagnosed [2] and in 2018 this number rose to 2.1 million cases [3, 4]. Breast cancer ranks fifth among the causes of cancer-related death worldwide with 522,000 deaths estimated to have occurred in 2012 [2, 4]. In high-income regions, breast cancer is the second most common cause of cancer-related deaths in women, after lung cancer [4, 5], while in low-middle-income regions, breast cancer is the leading cause of cancer-related death in women [2, 4]. The mortality from breast cancer is becoming a public health issue with devastating consequences in developing countries [1, 6]

In Nigeria, breast cancer is the most common malignancy affecting Nigerian women [3, 5] and mortality from breast cancer is causing traumatic effects on both individuals and communities. The cancer-related death from breast cancer in Nigeria in 2012 was 13,960 deaths. It has been estimated

that this number will increase to 16,908 deaths in 2020 [4, 5].

This paper provides findings of a study that explored the health-seeking behaviors of Southwestern Nigerian women presenting with advanced stage breast cancer from the time the women observed breast changes till the time they presented in the hospital for care. Identifying, understanding, and addressing the problematic areas of delays within the context of study participants may contribute to improving breast cancer early diagnosis, treatment options, and management outcomes. Reducing the illness stage at diagnosis may contribute significantly to improving the survival rate of the illness.

### **MATERIALS AND METHOD**

The study participants were women presenting with advanced stages of breast cancer in a large university-affiliated hospital in Southwestern Nigeria. All the participants were symptomatic and were at different stages of breast cancer management. The study was a qualitative study. The methodological approach was Interpretive description ID. Interpretive description is a qualitative methodological approach developed from an understanding of nursing philosophical and theoretical foundations [7, 8] to answer questions that emanate from within nursing [7, 8]. The goal of ID is to identify themes and patterns among subjective perspectives while at the same time, accounting for variations between individuals [8]. Interpretive description is aligned with a naturalistic orientation to an inquiry [8, 9]. The health belief model HBM developed by Rosenstock et al., [10, 11] was the conceptual framework adopted for the study.

### **ETHICAL CONSIDERATIONS**

Ethical approval to carry out the study was obtained from the University where the researcher was a student --- Behavioral Research Ethics Board Beh # 18-03 and the Hospital Institutional Ethics Review Board UI/EC/ 18/ 0076. Operational approval was also obtained from the management of the hospital where the data collection took place, to gain access to the institution and collect data. The aim and objectives of the study and all the study procedures were explained to prospective participants in plain and straightforward language. Participation in the study was free and voluntary. Each participant was aware she could withdraw her consent from participating in the study at any time without any penalty. Issues relating to confidentiality of the data collected, the anonymity of study participants, audio-recordings of the interview, and note-taking during the interview were all explained to the participants. Informed consent was obtained from consenting prospective participants to confirm their willingness to participate in the study.

### **THE SETTING/ CONTEXT OF THE STUDY**

This study was conducted in a large teaching hospital located in Southwestern Nigeria. The teaching hospital is a referral care center. The teaching hospital runs oncology clinics where breast cancer patients referred from other hospitals receive quality, comprehensive, and specialist treatment and care for breast cancer. The hospital was chosen because of the diversity of the patient population and for its reputation for quality equipment, medical assessment, treatment and care of patients. People travel from far and near to be assessed and treated for various ailments in the hospital.

### **RESEARCH PARTICIPANTS**

The study participants were women presenting with advanced stages of breast cancer, defined as stages III and IV of the illness. The study participants were in different stages of treatments and care. Identified gate-keeper oncologists and nurses assisted in participants' identification and approval for participation in the study.

### **SAMPLING TECHNIQUE AND SAMPLE**

By using a purposive sampling technique, 30 women with advanced breast cancer, who expressed willingness to participate in the study, were selected as the study participants. Purposive sampling enables the selection of information-rich participants, that is, people who have a great deal of knowledge about a health issue and are willing to share their knowledge to inform the phenomena under consideration. Sample size was guided by the saturation principle. Data saturation was judged to have been achieved when no new information that could enrich the emerging themes were ensuing from the participants during the interviews.

### **DATA COLLECTION AND PROCEDURE**

Phase one of data collection consisted of asking study participants to complete a personal demographic

form, while phase two consisted of the researcher conducting semi-structured, in-depth face-to-face, one-on-one interviews, guided by open-ended questions with each study participant. One-on-one interviews were adopted for the study because it could provide the researcher insight into how an individual interprets and manages observed body changes while taking into consideration the sociocultural context of the study [12]. It also helps to ensure that all areas of interest were covered, while at the same time allowing participants to be flexible and to have the freedom to freely discuss their symptoms and health-seeking activities. The interview protocol was designed by the researcher based on the information obtained from the literature review. Participants were asked about the nature of their symptom experiences; their health-seeking activities to manage the observed breast changes; and individuals contacted for advice and care. The interview protocol was translated into the local language, and back-translated by an independent translator to ensure consistency with the original meaning. Two experienced breast cancer oncologists, who had carried out many research studies in the area of breast cancer in the local setting, were supplied with copies of the interview protocol to assess for adequacy and suitability for collecting the required data in the data collection hospital. A pilot testing of the interview protocol and procedures was also conducted, in the same location as the study, engaging similar oncology patients apart from the study participants.

Interviews were conducted between February and May 2018. Study participants were interviewed in the language of their choice either in the local Yoruba or the English language. All interviews were audio-recorded, saved as a digital file to a password protected laptop, and personally transcribed verbatim by the researcher. The transcribed interviews were read while listening to the audio recordings, and all necessary corrections were made. Those interviews that needed to be translated from the local Yoruba language into the English language were translated. The translated interviews were back-translated by an independent translator, after he had signed the confidentiality agreement, to ensure the accuracy of the translation. The data collection and analysis transpired concurrently.

## **DATA ANALYSIS**

Descriptive statistics mean, median, and simple percentages were used to analyze and illustrate the study participants' characteristics. Individual participant's interview transcripts were uploaded into NVivo 12 QSR, International, 2018. The software was used at the initial stages of the data analysis to organize the data into "nodes." Interview excerpts considered relevant to the research question were identified and coded. Codes relevant and in harmony were combined, grouped, regrouped, and formed into themes to reflect the data. The themes represented the similarities study participants described in their different individual interviews, as their health-seeking behaviors.

## **RESULTS/ FINDINGS**

**Sample characteristics..** The 30 participants recruited for the study had different levels of education and employment status. Thirty percent (n=9) of the study participants had noticed breast changes two years before presenting, 10% (n= 3) for about 11-15 months, 23% (n= 7) for 5-10 months, and 36% (n=11) for less than 5 months. Analysis of the sample by age, revealed the mean age of the study participants was 47 years. This finding is consistent with findings in the empirical literature (13-15), that breast cancer in Nigerian women affects those who are relatively young and in the active phases of their physical, social, and economic developments.

## **THEMATIC ANALYSIS OF DATA**

A thematic analysis of the data relating to the health-seeking behaviors of the participants were condensed into three themes: 1) women with troubling breast symptoms engaged in self-care before seeking medical interventions, 2) women with troubling breast symptoms sought divine intervention before seeking medical attention, and 3) women with breast symptoms sought evidence-based knowledge and care. No previous study exploring the health-seeking behaviors of women with advanced breast cancer in Southwestern Nigeria was identified in the literature. However, there are themes common to breast cancer health-seeking behaviors in the literature that were used to compare to the findings of this study.

## **DISCUSSION**

### **THEMES RELATING TO THE PARTICIPANTS' HEALTH-SEEKING BEHAVIORS**

#### **Theme 1: Women with Troubling Breast Symptoms Engaged in Self-care before Seeking Medical Interventions**

The participants in this study described self-care as involving many behaviors, including using herbal and nutritional remedies, and purchasing drugs from the pharmacy and local drug stores. This theme was supported by two subthemes: **engaging in self-treatment** and **using nutritional remedies**.

**Women with breast changes engage in self-treatment** ‘I went to buy those tablets for infection that are being sold from the chemist shop’ (a forty-year-old participant). For the purposes of this study, self-treatment involves individuals treating their breast ill-health without the direct involvement of a healthcare professional or a traditional healer. Self-treatment differs from self-care in that it refers to treatments that are applied directly to the changes in the breast, whereas self-care is a more general term, including promoting overall good health. Factors influencing self-treatment in this study were breast changes, the interpretations of breast changes, and the perception of the severity of the illness. In this study, most participants, who considered that their condition was not serious, managed it through self-treatment. If symptoms worsened or showed no positive changes, individuals usually sought assistance, either by consulting with the local pharmacist, the traditional healers, or by going to the hospital.

A sixty-year-old participant described rubbing a lesion that she thought was a boil with Vaseline ointment and Shea butter. A forty-year-old participant bought tablets for infection that are being sold at the chemist. When describing pain she was beginning to feel in her arm close to her breast, a forty-five-year-old participant applied a balm.

These findings are congruent with those of Jegede [16] from a qualitative study in which he sought to understand the southwestern Nigeria Yoruba ethnic group’s cultural perception of health and illness. Jegede [17] observed in his study that on perceiving they have any illness, the Yoruba people initially engaged in self-care. It was only after these self-care attempts failed that they went to the hospital. The current study’s findings are also consistent with findings from a critical review of the literature [18] on patient versus provider delays in patients presenting with breast cancer. The review findings indicated that women applied antibiotics ointment to cure breast and nipple ulcerations, changed their bras to relieve pain under the breast, washed their nipples to clear secretions, rubbed the hardened areas of the breast to soften the tissue, and applied heat to hardened and painful parts of the breast before presenting for medical care at the hospital.

**WOMEN WITH BREAST CANCER ENGAGED IN SELF-CARE BY USING NUTRITIONAL REMEDIES.** ‘I do take vegetables and tomatoes. Tomatoes seeds seem to assist it’ (a sixty-year-old participant). When participants were asked to explain and elaborate on their health-seeking activities after they noticed their breast changes, some study participants recounted that they were using nutritional remedies to enhance and hasten the cure of their breast changes. Several participants said that, since their diagnosis, they had been drinking the liquid from heated soursop leaves. Some had been eating fruits and vegetables; others planned to do so once the wound from their surgery had healed. Omogbadegun [19] has provided a list of local medicinal plants that are being used by cancer patients in Nigeria. In a review, Shareef, Ashraf, and Sarfraz [20] also identified different types of plants being used for medicinal purposes as well as for food. However, scientists have pointed out that some herbal remedies can interfere with chemotherapy.

**Theme 2: Women with Troubling Breast Symptoms Sought Divine Intervention before Seeking Medical Attention:** This theme has been reported in the International Journal of Cancer Nursing [21].

**Theme 3: Women with Troubling Breast Symptoms Sought Evidence-based Knowledge and Care.** Another theme that emerged from the data analysis was the eagerness to seek evidenced-based knowledge and care. This theme was supported by two subthemes: Using the internet as a source of breast cancer information and seeking evidence-based care by going to the hospital.

**WOMEN WITH BREAST CHANGES SOUGHT INFORMATION FROM THE INTERNET.** ‘I browsed about it in the Internet’ (a forty-seven-year-old participant). When participants were asked to explain in details the steps they had taken after noticing their breast changes, a forty-eight-year old participant had this to say about her internet browsing:

I said that I have browsed on cancer and I know how it was, and I did not have any of the signs. The only difference I had was that I had a lump in my right breast and there were no other signs of cancer... I also browsed and saw that soursop is used to treat

cancer and hinder the spread....

Some women may not have had much information about breast cancer until they were directly affected by it, as indicated by a forty-two-year-old participant: 'I do not know anything about it... This is its first time. It has not occurred in my family neither has it happened to any of my family members before.'

For some participants, the Internet was an initial way of learning more about the illness and providing the individuals with information about cancer and its treatments. The Internet could also aid patients in selecting a specialist. A forty-four-year-old participant found out about the hospital this way: 'I went home, and I started doing some research online. You know, checking for hospitals in the country that really treat cancer patients. And so, that was how I got to know about this place.' A forty-two-year-old participant also had gone on the Internet to seek information on the management of breast cancer: 'I started Google searching on how to treat cancer. What causes it, the food to eat? So, I started taking fruits, doing some things that I read on the internet.'

This study finding on participants' searching the Internet for information and knowledge about breast cancer is similar to findings from Valero-Aguilera [22]. Other studies [23-25] have also found that breast cancer patients sought information from the Internet in response to their breast cancer.

**WOMEN WITH BREAST SYMPTOMS SOUGHT EVIDENCE-BASED CARE AT THE HOSPITAL.** 'The only step we took was to come to the hospital for treatment' (a forty-two-year-old participant). When participants were asked about the steps, they took to resolve their breast abnormalities, their responses varied. However, going to the hospital was a subtheme identified in the participants' descriptions of their health-seeking behaviors. These study participants were all recruited from the hospital, all had presented with advanced breast cancer. One of the reasons for why these women all presented with the advanced stages of the disease may be that many had tried other remedies and healing strategies before seeking medical care, thus delaying their diagnosis. Jegede [17] also observed that a typical southwestern Nigerian person presents in the hospital for care only after other remedies such as self-care and consultation with the traditional and spiritual healers have failed to cure the illness. Figure 1 Appendix 1 represents the health-seeking behaviors model of women presenting with the advanced stages of breast cancer in Southwestern Nigeria.

This model presents the pathways of the health-seeking behaviors as narrated by women with advanced breast cancer in Southwestern Nigeria. The model indicates that a woman will initially engage in symptom interpretation and self-care by applying home remedies, or buying drugs from the local drug store, and using nutritional remedies, following the experience of breast changes. Some participants did not understand the meaning of the changes and they, therefore, browsed the internet to acquire more knowledge about their breast changes. A few women recognized that something might be wrong, and they engaged in health-seeking by going to the hospital for medical attention. Some participants interacted with their social network members who reinforced misconceptions, and suggested alternative explanations for symptoms, and prompted health-seeking in the traditional way, while some social network members motivated some participants to go to the hospital for the management of their breast changes. When the participants in general did not experience positive changes and cure for their breast ill-health, they resorted to coming to the hospital for the management of their illness.

## **CONCLUSION**

Women in Southwestern Nigeria typically present with advanced breast cancer. Low level of breast cancer signs and symptoms awareness delayed the women's decision to seek professional attention to manage their breast changes. The health-seeking behaviors described by the women include engaging in self-care, seeking divine interventions, and seeking evidence-based knowledge and care. Ignorance of the nature of the participants' breast changes, the use of home and herbal remedies and spiritual healing were the leading causes of delayed presentation of women with advanced breast cancer in Southwestern Nigeria. The participants sought medical care after trying other types of remedies to manage and resolve their breast symptoms.

## **Limitations**

The scope of the study was limited to one geopolitical zone in Nigeria. The view of the participants

may not necessarily reflect that of patients from the remaining five geopolitical zones. However, the results show consistent pattern of breast cancer health-seeking behavior among African women. Also, the perceptions of the healthcare providers could have helped to widen the scope.

### **IMPLICATIONS OF THE FINDINGS FOR CLINICAL PRACTICE**

Using the health-seeking behavior model (Figure 1) developed in this study, nurses can plan, structure, and provide evidence-based, culturally sensitive, and contextually relevant comprehensive breast cancer education and counseling sessions that address the perceptions and beliefs of their patients. The model's constructs could provide an ongoing evidence-based structure for nurses to reassess patient's health-seeking behavioral patterns and their developmental, cognitive, and physical health needs within their socioeconomic, and their sociopolitical contexts.

One of the key findings of this study is that patients engaged in self-care. Nurses can support their patients to engage in self-care by actively listening to their patients' perceptions of self-care and engaging in health promotion communications with them. Nurses can use every opportunity to replace their patients' misconceptions with evidence-based alternative explanations and teachings.

Given the resilience of the patients in patronizing the services of the alternative breast cancer care providers, a situation whereby the alternative breast cancer care providers and the modern Western type of medicine practitioners function cooperatively might be beneficial to the health of the people. Policy regulating the activities of all alternative breast cancer care providers, as well as, integrating the traditional and the modern healing systems might significantly impact the treatment outcomes of women with advanced breast cancer in Southwestern Nigeria. Future research needs to explore the methodology of care provided by the alternative care providers.

**Data Availability Statement.** The data supporting the conclusions drawn from this study can be obtained from the corresponding author on request or from the Dean, Department of Nursing, University of Saskatchewan, Saskatoon, Canada.

**Biographical note:** Agatha Ogunkorode, RN, PhD is a Senior Lecturer at the Department of Nursing, College of Medicine and Health Sciences, Afe Babalola University of Ado-Ekiti, Ekiti-State, Nigeria.

Lorraine, Holtslander, RN, PhD, CHPCN<sup>®</sup> is Professor of Nursing, Research Lead, and the Graduate Chair at the College of Nursing, University of Saskatchewan, Saskatoon, Canada.

Linda, Ferguson, RN, PhD is an Emeritus Professor of Nursing at the College of Nursing, University of Saskatchewan, Saskatoon, Canada.

Johanna, Lize Maree, RN, PhD, DCur is a Professor and Head of Department of Nursing Education, School of Therapeutic Sciences, Faculty of Health Sciences, University of Witwatersrand, South Africa.

June, Anonson, RN, PhD is a Professor of Nursing, College of Nursing, University of Saskatchewan, Prince Albert, 217-1301 Central Avenue, Prince Albert, Canada.

Vivian, R. Ramsden RN, PhD, Professor and Director of Research Division, Department of Family Medicine, College of Medicine, University of Saskatchewan.

Saskatoon, Canada.

### **ACKNOWLEDGEMENTS**

The authors appreciation go to the women who volunteered to participate in this study. Thank you to individuals who translated the study instruments into the local Yoruba language, the experts who reviewed the research instrument before the pilot study, and to individuals who read the manuscripts for their hard work and very valuable suggestions and contributions.

### **DECLARATION OF INTEREST STATEMENT**

**Conflict of interest:** The authors declare no conflicts of interest.

### **FUNDING**

The research did not receive any specific grant from funding agencies in the public, commercial, or

non-for-profit sectors.

## REFERENCES

- [1] Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*. 2018;68(6):394-424.
- [2] Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*. 2015;136(5):E359-86.
- [3] WHO. GLOBOCAN 2012 (IARC) (2016). Estimated cancer incidence, mortality, and prevalence worldwide in 2012. 2016.
- [4] WHO. GLOBOCAN 2012. Cancer fact sheets breast cancer. 2017. International Agency for Research in Cancer. (IARC). Lyon/ Geneva
- [5] WHO. GLOBOCAN, 2012. International Agency for Research in Cancer. (IARC). Press release #223, December, 2013. Lyon/Geneva. 2013.
- [6] Soerjomataram I, Lortet-Tieulent J, Parkin DM, Ferlay J, Mathers C, Forman D, et al. Global burden of cancer in 2008: a systematic analysis of disability-adjusted life-years in 12 world regions. *Lancet*. 2012;380(9856):1840-50.
- [7] Thorne S, Kirkham SR, MacDonald-Emes J. Interpretive Description: A noncategorical qualitative alternative for developing nursing knowledge. *Research in Nursing & Health*. 1997;20(2):169-77.
- [8] Thorne S. Interpretive description: Qualitative research for applied practice. 2 ed. Morse J, editor. New York: Routledge, Taylor & Franceis; 2016.
- [9] Hunt MR. Strengths and Challenges in the Use of Interpretive Description: Reflections Arising From a Study of the Moral Experience of Health Professionals in Humanitarian Work. *Qualitative Health Research*. 2009;19(9):1284-92.
- [10] Rosenstock IM. Why People Use Health Services. *The Milbank Memorial Fund Quarterly*. 1966;44(3):94-127.
- [11] Rosenstock IM. The Health Belief Model and Preventive Health Behavior. *Health Education Monographs*. 1974;2(4):354-86.
- [12] Creswell JW. *Qualitative inquiry and research design: Choosing among five alternatives*. 2nd ed. Thousand Oaks: Sage Publications; 2007. 414 p.
- [13] Akarolo-Anthony SN, Ogundiran TO, Adebamowo CA. Emerging breast cancer epidemic: evidence from Africa. *Breast Cancer Research*. 2010;12(4):S8.
- [14] Okobia MN, Bunker CH, Okonofua FE, Osime U. Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study. *World Journal of Surgical Oncology*. 2006;4(1):11.
- [15] Azubuike SO, Muirhead C, Hayes L, McNally R. Rising global burden of breast cancer: the case of sub-Saharan Africa (with emphasis on Nigeria) and implications for regional development: a review. *World Journal of Surgical Oncology*. 2018;16(1):63.
- [16] Jegede A, S. The Yoruba cultural construction of health and illness. *Nordic Journal of African Studeis*. 2002;11(3):322-35.
- [17] Jegede AS. The Yoruba cultural construction of health and illness. *Nordic Journal of African Studeis*. 2002;11(3):322-35.
- [18] Facione NC. Delay versus help seeking for breast cancer symptoms: A critical review of the literature on patient and provider delay. *Social Science & Medicine*. 1993;36(12):1521-34.
- [19] Omogbadegun ZO. Medicinal pants-based foods for breast cancer treatment: An ethnobotanical survey and digitalization. *International Journal of Medicinal plants and altrnative medicine*.

2013;1(8):137-63.

- [20] Shareef M, Ashraf MA, Sarfraz M. Natural cures for breast cancer treatment. Saudi Pharmaceutical Journal. 2016;24(3):233-40.
- [21] Ogunkorode A. Health-seeking Behaviors of Women with Advanced Breast Cancer in Southwestern Nigeria [Manuscript]. Saskatton, Canada: University of Saskatchewan; 2019.
- [22] Valero-Aguilera B, Bermudez-Tamayo C, Garcia-Gutierrez JF, Jimenez-Pernett J, Cozar-Olmo JM, Guerrero-Tejada R, et al. Information needs and Internet use in urological and breast cancer patients. Support Care Cancer. 2014;22(2):545-52.
- [23] Balka E, Krueger G, Holmes BJ, Stephen JE. Situating Internet Use: Information-Seeking Among Young Women with Breast Cancer. Journal of Computer-Mediated Communication. 2010;15(3):389-411.
- [24] Fogel J, Albert SM, Schnabel F, Ditkoff BA, Neugut AI. Use of the Internet by Women with Breast Cancer. Journal of Medical Internet Research. 2002;4(2):e9.
- [25] Fogel J. Internet Breast Health Information Use and Coping among Women with Breast Cancer. CyberPsychology & Behavior. 2004;7(1):59-63.

Appendix 1: Figure 1

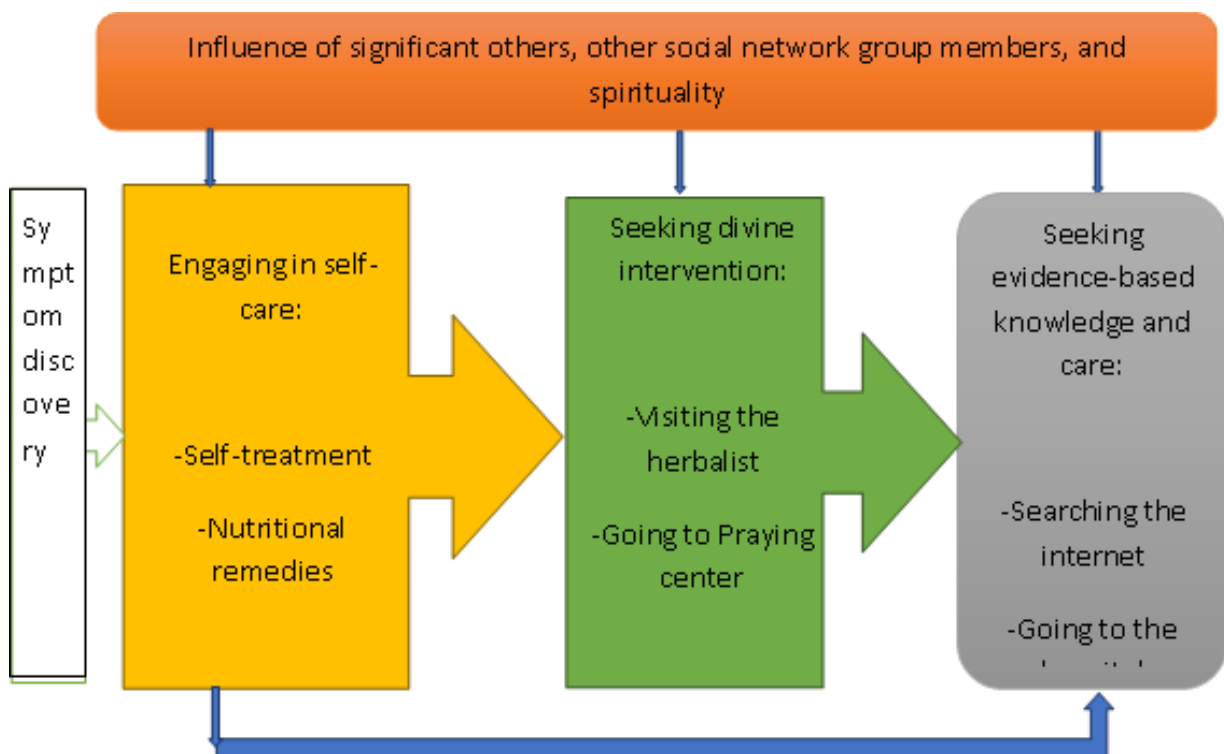


Figure 1 Health-seeking Behaviors Model of Women with Advanced Breast Cancer in Southwestern Nigeria