Original Article

Factors influencing non–adherence to chemotherapy: Perspective of Nigerian breast cancer survivors

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ABSTRACT

Background & Aim: The use of chemotherapy for the treatment of breast cancer has experienced a rapid increase in recent years and this is expected to continue. The objectives of the study were to ascertain the patient-related factors, therapy related factors, and health care system factors that influence non-adherence to chemotherapy among breast cancer survivors at University of Nigeria Teaching Hospital (UNTH), Enugu.

Methods & Materials: The study design was a cross-sectional descriptive survey with a total population of 100 cancer survivors. The breast cancer questionnaire was the instrument used for data collection.

Results: The result of the study showed that financial constraint 61(61.0%) was the major patient related factor that influence non-adherence to chemotherapy, medication side effects (hair loss, loss of weight) 62(62.0%) and duration of treatment 50(50.0%) were the major therapy related factors while unfavorable hour of clinic visit 40(40.0%) was the major health care related factor that influences non-adherence to chemotherapy.

Conclusion: It was concluded that the federal government should re-implement the health care policy that allowed treatment free-of-charge at Nigerian government hospitals to those with malignancies and other chronic ailments to mitigate the burden of associated financial problems and encourage patients to seek orthodox medical care. Also, health education initiation on benefit of adhering to chemotherapy would be needed on the part of the nurses to foster the women intake of chemotherapy. Nurses caring for women who receive endocrine therapy for breast cancer should identify those who may be at greater risk for being non-adherent.

Introduction

Breast cancer is the most common cancer in women both in developed and developing countries. It is the leading female malignancy in Nigeria and the leading cause of cancer mortality among women (1). The peak age of breast cancer in Nigerian women is 54 years. The WHO (2016) estimates that there are 100,000 new cases of breast cancer in Nigeria. Although there is paucity of current statistics on breast cancer cases in Nigeria. Estimated 1.7 million cases were diagnosed in 2012 and predicts that there are more than 247,000 new cases of breast cancer in Nigeria by 2015 compared with about 232,000 in 2012 (2). The high incidence in developing countries like Nigeria has been attributed to scarcity of adequate facilities for detection and diagnosis (3).

Chemotherapy (*chemo*) which is a systematic therapy is the treatment for breast cancer and may be given intravenously or by mouth (4). Chemo can be used as the main treatment for women whose cancer have spread outside the breast and underarm area, either when it is diagnosed or after initial treatments. The length of treatment depends on whether the cancer shrinks, how much it shrinks, and how well the chemo is tolerated (4). Treatment may be longer for advanced

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breast cancer and is based on how well it is working and what side effects (5). Chemo drugs can cause side effects such as hair loss and nail changes, mouth sores, loss of appetite or increased appetite and nausea and vomiting, increased susceptibility to infection, easy bruising, depending on the type and dose of drugs given, and the length of treatment (4).

Oncology Health Care Providers (HCPs) generally assume that patients with cancer will adhere to treatment recommendations because of the seriousness of a cancer diagnosis, however, reports in the literature have demonstrated adherence levels as low as 20% (6, 7). Reasons for non-adherence are complex in most situations (8). Factors that have been frequently associated with non-adherence to recommended medical therapies include individual patient characteristics, features of the disease and the treatment regimen, and aspects of the medical care system (9). Failure to adherence of medication is a serious problem which does not only affect the patient but also the healthcare system (10). Medication non-adherence leads to substantial worsening of the disease, death and increased health cost and as such health care professionals such as nurses, doctors and pharmacist have a significant role in their daily practice to improve patient adherence to medication (2).

Nigerian health care system faces public health challenges in the form of breast cancer. The issue of non-adherence to chemotherapeutic agents among women with breast cancer has been cited by the World Health Organization (2008) as the single most important modifiable factor that can compromise treatment outcomes. Non-adherence is dangerous and can lead the practitioner to change the dose or prescribe a different agent because of apparent non-responsiveness or unexpected adverse effects. It can also result in unnecessary diagnostic testing, changes in dose or therapeutic regimen and hospitalizations (11). It has been observed at the University of Nigeria Teaching Hospital, Enugu that there is an increase in oncologist visit by cancer survivors due to a relapse in the

disease condition. Increased hospitalization rates, longer hospital stays and decreased patient satisfaction are all possible outcomes of non-adherence to chemotherapy. This study is thus aimed at identifying factors that may impede the success of chemotherapy as these will enable Oncology health care providers to plan accurately for the treatment regimen and to improve the quality of health services provided. The specific objectives of this study are to ascertain the patient related factors, therapy related factors and health care system factors that influence non-adherence to chemotherapy among breast cancer survivors at UNTH, Enugu.

Methods

This is a cross sectional descriptive survey design study that carried out in University of Nigeria Teaching Hospital (UNTH) Enugu –Nigeria. The population for the study comprised of 100 breast cancer survivors currently receiving chemotherapy at oncology clinic of UNTH, Enugu - Nigeria. The sampling method used was census due to the small population. The entire population was used utilizing inclusion criteria of willingness of respondents to participate, and respondents on chemotherapy.

The instrument used in obtaining information for this study was the Breast Cancer questionnaire which was constructed in line with the research objectives. The Breast cancer questionnaire consisted of four sections. Section A which address the respondents' socio-demographic data and section B that determine the patient related factors that influence the non-adherence to chemotherapy among breast cancer patients at UNTH, Section C that determine the therapy related factors that influence non-adherence to chemotherapy among breast cancer patients at UNTH and section D which assess the health care system factors that influence non-adherence to chemotherapy among breast cancer patients at UNTH.

The face validity was done by the respondents for the study and content validity was ascertained by the researchers and experts in oncology who made corrections on the contents of the questionnaire and affirmed that the content relates to the objectives under study. All the corrections, recommendation and suggestion made by the researchers and experts on oncology before administering the questionnaire.

In order to establish the reliability of the instrument, 10 copies of the questionnaire which is 10% of sample size, were administered to Breast cancer survivors at the oncology clinic of Enugu State University Teaching Hospital, Enugu. Data generated from the pre-test survey was subjected to Cronbach's alpha test. The result of 0.80 showed that the instrument is reliable.

The researchers recruited and trained two assistants on the purpose of the study and the method of administering questionnaire. The questionnaire for this research was administered to respondents at the oncology clinic at UNTH. The researchers was introduced to the respondents and the purpose of the study explained to the respondents. All questionnaires were filled and collected on the spot. Distribution and collection of the questionnaire lasted for three weeks.

The analysis of data was done using simple descriptive statistics of frequency and percentages. Results were presented in tables and charts. SPSS (statistical package for social science) version 22 was used for the analysis. In order to obtain ethical clearance, a letter of introduction and summary of research protocol were sent to Health Research Ethics Committee of University of Nigeria Teaching Hospital Ituku-Ozalla, Enugu and approval was given. Consent was obtained from the respondents before the administration of the questionnaire. The researchers maintained the research ethics by ensuring that the respondents were not exposed to the possibility of injury during study, informing respondents of their right to choose whether to participate or not without prejudice, full disclosure and maximum confidentiality of information received from respondents was maintained by removing identifying markers in the questionnaires.

Results

Table 1 shows the socio-demographic data of the respondents. The respondents mean age and standard deviation was 42 years ± 10.57. In terms of age bracket of respondents, 32% were between 30-39 years, 66% have tertiary education, majority 94% are Christians, 41% are civil servants and 70% of the respondent are married.

Table 2 revealed that 36% of the respondents were diagnosed over six months ago from the time of the study while 42% were diagnosed over one year. Only few 21.0% were planned for chemotherapy a week after diagnosis. Below average 35% of the respondents were planned after over one months from the date of diagnosis. Of all that were planned for chemotherapy, only few 20% could commence chemotherapy within 2weeks, while majority 56% started treatment over one month after planning. Financial constraint has the highest frequency 48% in the list of reasons they gave for no commencement of chemotherapy. Half of the respondents were planned for four course regimen of chemotherapy while 21% and 10.0% respondents were planned for eight and twelve courses respectively.

Table 3 shows the patient related factors that influence non-adherence to chemotherapy among breast cancer survivors at UNTH. Majority 61% were on affirmative to financial constraint, 48% worry about the outcome of treatment. Other reason given were fear of long term dependent on medication by 41%, distance from the health facility by 31%, lack of emotional support.

Table 1. Socio-demographic profile of the respondents (n=100)

Variables		N	%
Age distribution in years	20-29	11	11.0
	30-39	32	32.0
	40-49	32	32.0
	50-59	18	18.0
	60 and above	7	7.0
Highest level of education	No formal education	4	4.0
	Primary education	7	7.0
	Secondary education	29	29.0
	Tertiary education	60	60.0
Religion	Christianity	94	94.0
	Islam	6	6.0
Occupation	Housewife	10	10.0
	Farmer	4	4.0
	Trader/ business	16	16.0
	Civil servant	41	41.0
	Self-employed	21	21.0
	Not employed	8	8.0
Marital status	Married	70	70.0
	Single	26	26.0
	Widowed	4	4.0

Table 2. Chemotherapy regimen characteristics among the respondents (n=100)

Variable questions		N	%
When diagnosed of breast cancer	Less than four months	22	22.0
	More than six months	36	36.0
	Over a year	21	21.0
	Over two years	21	21.0
When planned for chemotherapy	<Less than four days after diagnosis	7	7.0
	A week after diagnosis	21	21.0
	Two weeks after diagnosis	12	12.0
	A month after diagnosis	25	25.0
	More than one month after diagnosis	35	35.0
Commencement of Chemotherapy	1-2 weeks after planning	20	20.0
	3-4 weeks after planning	15	15.0
	>1 month after planning but < 2months	43	43.0
	>2 months	22	22.0
What delayed the commencement of chemotherapy	Busy work schedule	8	8.0
	Financial constraint	48	48.0
	Lack of family/community support	3	3.0
	Did not believe result	6	6.0
	No response	27	27.0
Courses of chemotherapy recommended	Four	50	50.0
	Eight	21	21.0
	Twelve	10	10.0
	Sixteen	3	3.0
	More than seventeen	16	16.0
Courses of chemotherapy missed	None	21	21.0
	One	19	19.0
	twice	31	31.0
	More than two times	9	9.0

Table 4 revealed the result of therapy related factors by the respondents. Medication side effects 62%, duration of treatment period 50%, having been told to abstain from some foods like red meat and preferring taking oral medication 43%.

Table 5 reveals the healthcare related factors that affect adherence to chemotherapy, 47.0% of the respondents identified non availability of the prescribed drug in the health facility.

There were also equal identification of patient-prescriber relationship and unfavorable hour of clinic visit 40.0% each and long waiting time for clinic visit by 39.0%, and non-readiness of pre-chemotherapy investigation results by 38.0%.

Table 4. Treatment related factors that cause non-adherence to chemotherapy (N=100)

Variable question		Responses	
		N	%
Therapy factors cause non adherence to chemotherapy treatment (Multiple options)	I prefer taking drugs orally	43	43.0
	Treatment complexity	26	26.0
	Duration of treatment period	50	50.0
	Medication side effects (hair loss, loss of weight)	62	62
	I have been told to abstain from eating some foods like red meat	47	47.0

Table 5. Healthcare related factors affecting adherence to chemotherapy (N = 100)

Variable questions		Responses	
		N	%
Healthcare related factors (Multiple options)	Availability of health personnel	21	21.0
	Accessibility to health care facilities	29	29.0
	Difficulty in getting prescriptions refilled	29	29.0
	Long waiting time for clinic visits	39	39.0
	Patient-prescriber relationship	40	40.0
	Unfavourable hour of clinical visit	40	40.0
	Pre-chemotherapy investigation results not ready	38	38.0
	Prescribed drugs not available in hospital pharmacy	47	47.0
	Prescribed drugs not available in hospital pharmacy	29	29.0
	Health workers strike	29	29.0

Discussion

The study revealed that financial constraint and worry about outcome of treatment are the two major patients related factors that influences non-adherence to chemotherapy. These results might be due to the poor economic situation in Nigeria presently and the fact that breast is seen in this part of the world as an illness with no hope of survival thereby inducing worry in the respondents leading to non-adherence to chemotherapy. This study agrees with findings by Adewale, Olukayode and Adesunkanmi which reported poor economic status of the patients as one of the major reasons for non-adherence to cancer chemotherapy in Nigeria (11). According to Anyanwu and Egwuonu (2011), lack of health care coverage can be a barrier to seeking medical care, and probably adhering to the prescribed treatment, especially in a poor population and during hard economic times (12). A former Nigerian health care policy allowed free-of-charge treatment at Nigerian government hospitals to those with malignancies and other chronic ailments, and to those otherwise designated as 'teaching and research cases' in order to mitigate the burden of associated financial problem and encourage patients to seek orthodox medical care but such is no longer in existence currently. This could be a contributing factor to the financial stress experienced by patients.

The result of the study shows that majority 62(62.0%) suffered from medication side effects (hair lose, loss of weight) and duration of treatment 50(50.0%) are the major treatment factors that influences the non-adherence to chemotherapy by the participants. Drug side effects have also been given as reason for

non-adherence among women taking Tamoxifen (13). These side effects according to Schneider, Hess and Gosselin, (2013) includes alopecia, lecopenia, and pain, loss of appetite or increased appetite, increased susceptibility to infection, easy bruising, thrombocytopenia, infertility, anaemia, and dermatitis. This result agrees with Adewale, Olukayode and Adesunkanmi (11), study which reported that 11% of their study sample size was unable to further bear the drug side effects. Duration of treatment was also seen to be another therapy related factor that hinders adherence to chemotherapy; this result is in contrast with Adewale, Olukayode and Adesunkanmi study which reported that 15% of their study sample size identified fear of subsequent operation. This could be associated with the worry associated with informing patient that they would receive treatment for a long time. Another factor influencing chemotherapy non-adherence is the respondents' being told to abstain from eating some foods like meat and preference to taking drugs which might be due to the non-painful effect of taking such drug. This agrees with Kelloway, Wyatt and Adlis, (2014) (14) who identified that medications with a convenient way of administration (eg, oral medication) are likely to make patients compliant compared with injections.

The result of the study revealed that prescribed drug unavailable in the hospital pharmacy 47(47.0%) and the equal identification of patient–prescriber relationship and unfavorable hour of clinic visit 40(40%) respectively influences the respondents' adherence to chemotherapies. In the present economy, the poor budgetary allocation for 2017, meagre 4.15 per cent, though a marginal improvement on the 3.73 per cent figure of 2016 as against the WHO standard for member countries to give at least 13 per cent of its minimum allocation to the health sector if they must adequately meet the healthcare needs of their citizens. The implication of this is an under stocked pharmacy in the hospital. Also, in the area of the present study, the hospital is short staffed, this possibly resulted in designation

of clinic days which may be unfavorable for patients thus the few personnel available attend to a great number of the patients on specified clinic days. This inadvertently may result in burnout on the part of the health care provider, considering the large number of patients they need to attend to, thereby creating a strain in patient-provider relationship. This is in contrast with the study of Ponnusankar (15) who discovered availability and accessibility to health care and lack of accessibility to healthcare as healthcare related factors hindering adherence to chemotherapy while Lawson et al (16) identified long waiting time for clinic visits and difficulty in getting prescriptions filled (17), unhappy or unsatisfied clinic visits (16) which all contributed to poor compliance.

The result of the study demonstrated the various factors that influence patients' non-adherence to chemotherapy. Based on the result, financial constraint and worry about outcome of treatment, medication side effects such as hair lose, loss of weight, duration of treatment and prescribed drugs not available in the hospital pharmacy and unfavorable hour of clinic visit. This implies the nurses to design various programe such as freewill donations from church organizations and the affluent members in the society as well as the government agencies to inspire the cancer survivors in adhering to therapy. Also, health education initiation on benefit of adhering to chemotherapy would be needed on the part of the nurses to foster the women intake of chemotherapy. Nurses caring for women who receive endocrine therapy for breast cancer should identify those who may be at greater risk for being non-adherent. Therefore, nurses should assess cancer survivors to determine whether they are experiencing depression or anxiety during pre-therapy and throughout the course of therapy. Nurses also should assess women to determine whether they are experiencing symptoms related to their breast cancer or its treatment. Effective management of problems with symptoms experienced at pre-therapy and throughout therapy may help women with breast cancer

maintain better adherence to endocrine therapy over time. Also, nurses need to assess whether women are experiencing financial hardships related to the cancer and its treatment and provide appropriate information and referrals so that women receive the resources they need to complete the full, prescribed course of chemotherapy. It was therefore recommended that the nurses should advocate for the patients for the federal government to re-implement the health care policy that allowed treatment free-of-charge at Nigerian Government hospitals to those with malignancies and other chronic ailments to mitigate the burden of associated financial problem and encourage patients to seek orthodox medical care. The fee for chemotherapy should also be subsidized as this would improve patient's adherence to chemotherapy. There should be cancer specific educational package with focus on knowledge about disease and treatment to be organized routinely by the health care personnel in the various health care facilities in Nigeria. More health care personnel should be made available to work in the health facility to reduce the problem of unfavorable hour of clinic visits and burnout associated with short staffing. An increase in the federal government allocation towards the health sector to reduce the problem of drug unavailability in the hospital pharmacy. The uncooperative attitude of the respondents, the small sample size which may introduce bias and limited materials on the topic.

Acknowledgement

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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