Evaluation of Behaviour Modification and Social Adjustment among Breast Cancer Survivors Attending Follow Up Clinic in FMC OWO Nigeria

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Abstract
PURPOSE
Breast cancer is a highly prevalent medical problem with current data suggesting that more than 1in 8 women will develop breast cancer within their lifetime. A devastating disease affects thousands of women and men (rarely) every year. It had influenced their mental health and psychological wellbeing when diagnosed. However, because of advances in early detection and medical treatment of cancer in the past three decades as well as the increasingly higher expectancy of the population, the survivor tends to live longer than usual mostly when behaviour is modify and psychosocial adjustment is made. Due to dearth information on lifestyles modification, this study tends to evaluate different behaviour modification and social adjustment; and knowledge of behaviour modification and social adjustment among respondents at Federal Medical Centre, Owo, Ondo State, Nigeria.
Methodology
Eighty-six (86) breast cancer survivors and those receiving follow-up care who were randomly selected for this study during their clinic attendance, with due ethical consideration and informed consent. Data collection spanned two (2) months using self-structured questionnaire with Cronbach Alpha of 0.86 and were analysed using descriptive and inferential statistics, and charts. Alpha level was set at p<0.05.
RESULTS
The result revealed mean age of 47±7.32, with 60.4% having average monthly income of #150,000 and above. Majority of the respondents (69.8%) had tertiary education. The respondents have high knowledge of behaviour modifications and social adjustment with 87.2% and 64.0% respectively. There was a significant relationship between the respondents level of education, income, and behavioural modifications with $\chi2= 21.76$, $p< 0.001$ and$\chi^2 = 16.32$, $p< 0.001$.
Conclusion
In conclusion, the respondents had a high level of knowledge about behavioural modifications and social adjustment, and exhibited a positive level of behavioural modifications and social adjustment, with resultant level of education and income status as factors enhancing those variables.
Keywords: *Breast Cancer, Behaviour Modification and Social Adjustment*

I. Introduction

Breast cancer is a highly prevalent medical problem, with current data suggesting that more than 1 in 8 women will develop breast cancer within their lifetimes (American Cancer Society, 2016). It is the most frequently diagnosed cancer among women, accounting for nearly one-third of cancer cases. Each year, 211-240 women develop invasive breast cancer and 58,490 develop *in situ* (localized) breast cancer. Although 98% of women with localized cancer are expected to survive 5 years or more, survival rates decrease for those with regional (81%) and metastatic breast cancer (26%) (American Cancer Society, 2016). Despite the relatively high survival rates, breast cancer is the second leading cause of cancer death among women after lung cancer, with 40,410 deaths from the disease each year. Breast cancer rates have increased over the past 20 years but mortality has decreased, in part due to screening and early detection (American Cancer Society, 2016).

Although various forms of psycho-education and counseling interventions have been examined among patients with a variety of diagnoses, the unique contribution of phase-specific psycho-education and telephone counseling (TC) to the ongoing process of adjustment has not been explored among patients with cancer of the

mammary gland and their partners. (Budwin, 2009). It has been discovered that patients with intimate partners had greater difficulties in their social and physical environments. Partners in intimate-partner dyads had a lower score on psychological well-being, more problems in the social and domestic adjustment, and less social support to promote social adjustment (Sherman 2009)

Treatment for breast cancer is selected based on stage, biological characteristicsof the cancer, and patient preferences (Beenken& Bland, 2012).

Most women with breast cancer undergo either lumpectomy followed by radiation therapy or simple or total mastectomy. Noninvasive ductal carcinoma *in situ* (stage 0) may be treated with lumpectomy plus radiation or mastectomy. A less frequent form, lobular carcinoma *in situ*, is simply observed over time. Localized or regional invasive breast cancer (stages I-IIIa) that has not spread beyond the breast or axillary lymph nodes is generally treated with lumpectomy plus radiation therapy or mastectomy. Depending on the extent and biological characteristics of the cancer, patients may also be treated with chemotherapy. Chemotherapy is generally used to treat both regionally advanced (spread beyond the breast and axillary nodes) and metastatic breast cancer. Some women receive radiation therapy or chemotherapy prior to surgery, or neoadjuvant

treatment, in order to shrink a bulky tumor and allow for less extensive surgery. Finally, women who have cancers with estrogen receptors (called "ER positive") may take Tamoxifen or other anti-estrogen agents following initial treatment, which reduces the likelihood of recurrence by 26% and death by 14%. Breast cancer treatment is generally accompanied by unpleasant side effects. Physical side effects of surgery include swelling in the arm due to fluid retention

(Bumpers, Best, Norman, & Weaver, 2012; Manusell, Brisson, & Deschenes, 2013) and pain. Radiation side effects include fatigue, skin changes, breast changes, breast soreness, difficulty swallowing, swelling due to fluid retention, and shoulder stiffness (National Cancer Institute, 2010). Chemotherapy side effects include fatigue, nausea and vomiting, hair loss, infections, anemia, pain, gastrointestinal problems, cognitive dysfunction, peripheral neuropathy, menopausal symptoms, and infertility (National Cancer Institute, 2009). Psychological effects of treatment for breast cancer have also been well characterized and include depression and anxiety, poor body image, problems with sexual functioning, and disruption of social relationships (Moyer &Salovey, 2016).

STATEMENT OF PROBLEM

Breast cancer is a devastating disease that affects thousands of women and men every year and has an impact on their psychosocial and physical well being after being diagnosed. But as a result of advances in early detection and medical treatment of cancer in the past three decades as well as the increasingly higher expectancy of the population, cancer incidence rate continue to rise worldwide (Ferly, Shin, Poray, Forman, Mathhers&Parkin, 2008). Due to high prevalence rate, cancer has turned to a life threatening chronic condition for a large proportion of patients that poses new challenge for comprehensive cancer care. Because of the aforementioned reasons, this patient requires behavioural modification and social adjustment to cope with the rigor of the prognosis, socio-economic effects and compliance with the treatment regimen.

Though, many articles have been published on breast cancer which addresses the prognosis and psychosocial effects of the disease. There is no enough information and study on the behavioural modification and social adjustment among patient living with cancer of the mammary hence this study was conducted by the researcher.

OBJECTIVES OF THE STUDY
*   To measure the respondents knowledge of behavioural modification
*   To measure the respondents knowledge of social adjustment
*   To examine the different behavioural modification adopted by the respondents in coping with cancer of the mammary gland.

II.   Methodology
Research design
A descriptive design following the survey method (in which the participants/respondents answer questions administered through questionnaires after which the researcher described the responses given) was used in this study to discover rate of behavioural and social adjustments among patients of F.M.C. Owo.

Research setting
This research was conducted in Federal Medical Centre Owo. It is a multi specialist healthcare centre located along AdekunleAjasinOwo in Owo local government. The hospital also serves as a clinic experience setting for nursing and medical laboratory students of Achievers University Owo and is a very busy hospital. Owo is a city in Ondo State of Nigeria. Between 1400 and 1600 AD, it was the capital of a Yoruba city-state.

Owo is situated in south-western Nigeria, at the southern edge of the Yoruba Hills, and at the intersection of roads from Akure, Kabba, Benin City, and Siluko. Owois situated halfway between the towns of Ile Ife and Benin City. Owo has secondary schools, a Federal Polytechnic, St. John's Teacher Training College, a government trade institute, a museum, and several hospitals. The local government has a population of 222,262, based on 2006 population census.

Target population
This research work was conducted among patients with cancer of the mammary gland that are in F.M.C. Owo.
Sample size determination
The sample size was determined using Yamane's formula
$$n = N/ [1+N (e^2)]$$
Where   n = sample size
   N = total population
   e = error margin (0.05)
Sampling technique
A simple random sampling technique was used in this study to assess behavioural modification and social adjustment among patients with cancer of the mammary gland in F.M.C. Owo.
Instruments for data collection
A set of questionnaires was designed by the researcher which contained a series of related questions to get information from the respondents and the reliability and validity was assessed by the supervisor for content or face validity.
Validity of the research instrument
Face and content validity was used to ascertain the validity of the research instrument.
Reliability of the research instrument
The reliability of the research instrument was establish through pilot study usingtest re-test method and the instrument was adjudged reliable for the study with Cronbach Alpha 0.89.
Method of data collection
Participants was approached to obtain individual informed consent following the approval protocol and the self-administered questionnaires was given to the participants to fill and will be collected immediately by the researcher. Research assistants may be recruited and trained if needs be to aid faster process of delivery of questionnaires.
Method of data analysis
Data was analyzed using descriptive statistics (frequencies, means and standard deviation) and illustrated using bar charts.
Ethical considerations
Appropriate authorities were met for permission to conduct the study. Respondents were informabout the study, what it entailed benefits of the study to them and their consent was gain. Respondents werereassured that whatever information obtained through the research process would be kept confidential.

III.   Results
Table 1: Demographic profile of respondents

Bio Data	Profile	Frequency	Percentage
Age (47±7.32)	Below 30	07	8.1
	30- 40	16	18.6
	41- 50	22	25.6
	51- 60	21	24.4
	Above 60	20	23.3
Sex	Male	02	2.3
	Female	84	97.7
Marital Status	Single	23	26.7
	Married	60	69.8
	Divorced	03	3.5
Family Type	Monogamy	79	91.9
	Polygamy	07	8.1
Level of Education	Informal	38	44.2
	Primary	12	14.0
	Secondary	36	41.8
Occupation	Student	07	8.1
	Farmer	05	5.8
	Trader	23	26.7
	Civil Servant	36	41.9
	Artisan	10	11.6
	Others	05	5.8

Ethnicity	Yoruba	55	64.0
	Igbo	21	24.4
	Hausa	10	11.6
Settlement	Rural	41	47.7
	Urban	45	52.3
Monthly Income	₦10,000- ₦50,000	12	14.0
	₦60,000 – ₦100,000	22	25.6
	₦110,000 – ₦150,000	37	43.0
	Others	15	17.4
Treatment Type	Chemotherapy	61	70.9
	Surgery	25	29.1
Source of support	Father	20	23.3
	Mother	53	61.6
	Grandparents	09	10.4
	Others	04	4.7

The socio-demographic characteristics of respondents are presented in table 1. From the result, 25.6% of respondents were within age range 41-50years, 24.4% were within 51-60years while 23.3% were above 50years. The mean age of the respondents was 47±7.32. In addition, 97.7% of the respondents were female while majority, 69.8% were married. Furthermore, 91.9% have monogamy family, 44.2% had formal education and 41.9% were civil servant. Majority were Yoruba (64%) who were majorly urban dwellers (52.3%) and whose major monthly income fall within $110,000- #150,000. As regards treatment and family support, most received chemotherapy (70.9%) with major family support from the mothers (61.6%).

Table 2: Showing Knowledge about behavioural modification

Knowledge Scale	Yes		No	
	F	%	F	%
Have you ever heard of Behavioural modifications	67	77.9	11	12.8
Behavioral modifications are essential in Managing a Condition like breast cancer	58	67.4	28	32.6
Behavioural Modifications relevant to breast cancer include change in diet pattern, change in sexual relations, change in activity pattern etc.	70	81.4	16	18.6

From the table, 77.9% of the respondents have heard about behavioral modifications and 67.4% claimed that behavioral modifications are essential in managing a condition like breast cancer and 81.4% claimed that behavioral modifications relevant to breast cancer include change in diet pattern, change in sexual relations, change in activity pattern etc.

Measure of respondents' level of knowledge towards behavioral modification

This was determined by adding up the variables. The yes option carried a score of "1" and no option carried a score of "0" to make a total score of 3. The mean score obtained was used to grade level of knowledge into high and low. Below the mean score was used to denote low and from the mean score above was used to denote high level of knowledge.

Table 3: Showing level of level of knowledge

L e v e l	Frequency (n)	Percentage (%)
H i g h	75	87.2
L o w	11	12.8

From the result, 12.8% have low level of knowledge about behavioral modification while 87.2% have high level of knowledge about behavioral modification.

Table 4: Knowledge about social adjustment

Knowledge scale				
	Yes		No	
	F	%	F	%
Have you ever heard about social adjustment	59	68.6	27	31.4
Social adjustment helps a person diagnosed with breast cancer to manage his/her condition better	50	58.1	36	41.9
Social adjustment relevant to a breast cancer diagnosis includes modifying how one relates with family members and peers	58	67.4	28	32.6

From the tabe, 68.6% of the resondents have heard about social adjustment, 58.1% knew that social adjustment helps a person diagnosed with breast cancer to manage his/her condition better while 67.4% of the respondents believed that social adjustment relevant to a breast cancer diagnosis includes modifying how one relates with family members and peers

Measure of respondents' level of knowledge towards social adjustment

This was determined by adding up the variables. The yes option carried a score of "1" and no option carried a score of "0" to make a total score of 3. The mean score obtained was used to grade level of knowledge into high and low. Below the mean score was used to denote low and from the mean score above was used to denote high level of knowledge.

Table 5 Showing level of knowledge

Level	Frequency (n)	Percentage (%)
High	55	64.0
Low	31	36.0

From the result above, 64% of the respondents have high level of social adjustment while 36% have low level of social adjustment.

Table 6: Showing level of behavioral modification

	Yes		No	
	F	%	F	%
I have been cautious not to put on weight after I have been diagnosed	68	79.1	18	20.9
I have been going for regular medical checkup since my diagnosis	76	88.4	10	11.6
I have avoided foods high in saturated fats	77	89.5	09	10.5
I now eat more of fruits high in proteins and vitamins	68	79.1	18	20.9
I have been going for counseling since my diagnosis	61	70.9	25	29.1
I have been attending my chemotherapy sessions	61	70.9	25	29.1
I have been doing exercise daily	62	72.1	24	27.9
My anxiety about my conditions	47	54.7	39	45.3
I have stopped drinking alcohol	65	75.6	21	24.4
I have stopped smoking Cigarettes	69	80.2	17	19.7
I wear clothes that cover my breast properly to make my condition less obvious	77	89.5	09	10.5
I wear clothes that cover my breast properly to make my condition less obvious	80	93.0	35	7.0
I now sleep in a separate room from my husband/wife	35	40.7	51	59.3

Table 4.4 highlights respondents' level of behavioral modifications. From the table above, 79.1% of the respondents have been have been cautious not to put on weight after been diagnosed, 88.4% have been going for regular medical checkup since diagnosis and 89.5% have been have avoiding foods high in saturated fats. Moreover, 70.9% have been going for been going for counseling and chemotherapy session respectively. Similarly, 72.1% of the respondents claimed to have been doing exercise daily, 75.6% have stopped smoking while 80.2% have stopped consuming alcohol. In addition, 89.5% of the respondents do wear clothes that cover their breasts properly to make their condition less obvious, 93%do wear special braziers to make their condition less obvious while 40.7% of the respondents now sleep in a separate room from my husband/wife.

Assessment of respondents' level of behavioral modifications

The behavioral level of modifications of respondents was determined by adding up the variables. The yes option carried a score of "1" and no option carried a score of "0" to make a total score of 13. The mean score obtained was used to grade level of modifications into high and low. Below the mean score was used to denote low and from the mean score above was used to denote high level of behavioral modifications.

Table 7 Showing level of behavioral modifications

Level	Frequency (n)	Percentage (%)
High	79	91.8
Low	07	8.2

From the result, 8.2% have low level of understanding of behavioral modifications while 91.8% have high level of understanding of behavioral modifications

Figure 3: Pie chart showing level of understanding of behavioral modifications
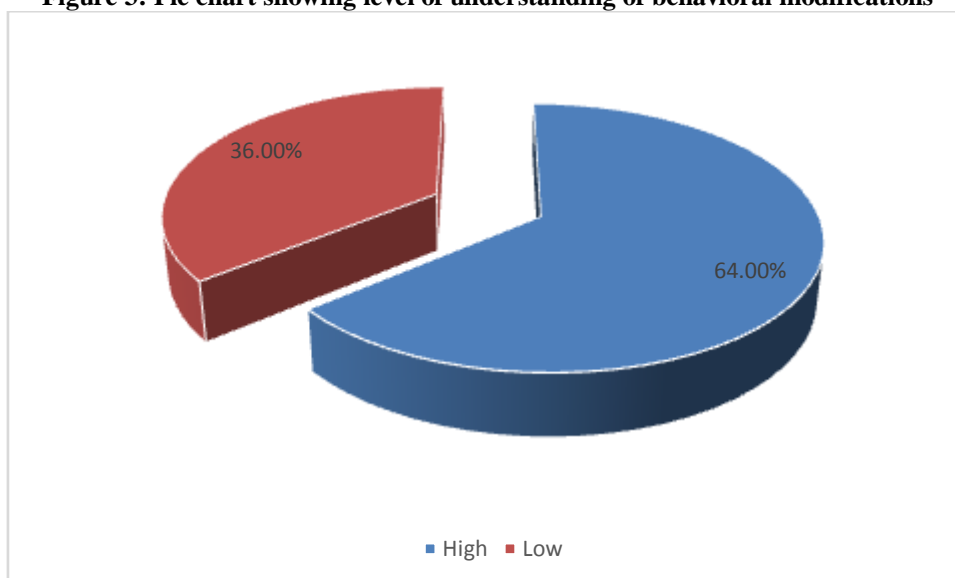
Level of Social Adjustment

Table 8 Sowing level of social adjustment

	Yes		No	
	F	%	F	%
I talk about breast cancer in my home and among my peers	56	65.1	30	34.9
I advise people in my community to go for mammography screening for early detection of breast cancer	45	52.3	41	47.7
I can attend any social function despite people being aware of my diagnosis	50	58.1	36	41.9
I still go about my daily activities almost the way I did before my diagnosis	45	52.3	41	47.7
I have advised my other family members to go for mammography screening	61	70.9	25	29.1
I have decided to go for mastectomy to improve social adjustment	49	57.0	37	43.0
I have made friends with people that have the same condition as me	55	64.0	31	36.0
I have been attending seminars and programs on breast cancer	77	89.5	09	10.5
I have been attending seminars and programs on breast cancer	50	58.1	36	41.9
I relate with my co-workers the same way I did before my diagnosis	58	67.4	28	32.6
I relate with my family members the same way I did before my diagnosis	65	75.6	21	24.4

From the above table, 65.1% of the respondents talk about breast cancer in their home and among their peers and 58.1% claimed that they attend any social function despite people being aware of diagnosis. Similarly, 70.9% of the respondents have advised their family members to go for mammography screening, 64% have made friends with people that have the same condition as theirs while 89.5% have been attending seminars and programs on breast cancer. Furthermore, 67.4% of the respondents claimed that they relate with their co-workers the same way they did before diagnosis and 75.6% also claimed that they relate with their family members the same way they did before diagnosis.

Assessment of respondents' level of social adjustment

This was determined by adding up the variables. The yes option carried a score of "1" and no option carried a score of "0" to make a total score of 13. The mean score obtained was used to grade level of adjustment into high and low. Below the mean score was used to denote low and from the mean score above was used to denote high level of social adjustment

Table 9 Showing level of social adjustment

Level	Frequency (n)	Percentage (%)
H i g h	61	70.9
L o w	25	29.0

From the result, 29.1% have low level of social adjustment while 70.8% have high level of social adjustment.

Hypotheses Testing
H1: There is a significant relationship between level of education and behavioral modification after a diagnosis of cancer of the Mammary gland

Level of education	Behavioral modification			Chi-square Test	
	High N(%)	Low N(%)	Total N(%)	χ^2	P-Value
Formal	35(40.7)	3(3.5)	38(44.2)	21.760	0.01
Primary	10(11.6)	2(2.3)	12(14.0)		
Secondary	34(39.5)	2(2.3)	36(41.8)		
Total	79(91.8)	7(8.2)	86(100)		

The chi-square statistics revealed a significant relationship between level of education and behavioral modifications (χ^2= 21.76, p< 0.001). Therefore, we accept the alternate hypothesis
H1: There is a significant relationship between financial status and behavioral modification after a diagnosis of cancer of the Mammary gland

Financial status	Behavioral modification			Chi-square Test	
	High N(%)	Low N(%)	Total N(%)	χ^2	P-Value
#10,000-#50,000	12(14.0)	- - -	12(14.0)	16.32	0.03
#60,000-#100,000	20(23.3)	2(2.3)	22(25.6)		
#110,000-#150,000	33(38.7)	4(4.6)	37(43.0)		
Others	14(16.3)	1(1.2)	15(17.4)		
Total	79(91.8)	7(8.2)	86(100)		

The chi-square statistics revealed a significant relationship between financial status and behavioral modifications (χ^2= 16.32, p< 0.001). Therefore, we accept the alternate hypothesis
H1: There is a significant relationship between the culture/religion and behavioral modification after a diagnosis of cancer of the Mammary gland

Ethnicity	Behavioral modification			Chi-square Test	
	High N(%)	Low N(%)	Total N(%)	χ^2	P-Value
Yoruba	51(59.3)	4(4.7)	55(64.0)	1.342	0.51
Igbo	20(23.2)	2(2.3)	21(24.4)		
Hausa	9(10.5)	1(1.2)	10(11.6)		
Total	79(91.8)	7(8.2)	86(100)		

The chi-square statistics revealed a significant relationship between financial status and behavioral modifications (χ^2= 1.342, p> 0.001). Therefore, we reject the alternate hypothesis
H1: There is a significant relationship between level of social adjustment and behavioral modification that will follow a breast cancer diagnosis

Level	Behavioural modification			Chi-square Test	
	High N(%)	Low N(%)	Total N(%)	X 2	P-Value
High	57(66.3)	4(4.7)	61(70.9)	79.2	0.001
Low	22(25.6)	3(3.5)	25(29.1)		
Total	79(91.8)	7(8.2)	86(100)		

The chi-square statistics revealed a significant relationship between level of social adjustment and behavioral modifications (χ^2= 79.72, p< 0.001). Therefore, we accept the alternate hypothesis.

IV.   Discussion, Conclusion And Recommendation
Socio-Demographics Characteristics
A total of 86 patients were utilized for this study out of which majority were within age range 41-50years, 24.4% were within 51-60years while 23.3% were above 50years. The mean age of the patients was 47±7.32.In addition, 97.7% of the patients were female while majority, 69.8% were married. Furthermore, 91.9% have monogamy family, 44.2% had formal education and 41.9% were civil servant. Majority were Yoruba (64%) who were majorly urban dwellers (52.3%) and whose major monthly income fall within

$110,000-#150,000. As regards treatment and family support, most received chemotherapy (70.9%) with major family support from the mothers (61.6%).

❖ **What are the attitudes of patients towards behavioral modification**

From the study, the patients have been cautious not to put on weight after been diagnosed and majority have been going for regular medical checkup since diagnosis and 89.5% of the patients have been have avoiding foods high in saturated fats. This was similar to the findings of Sam, Brooke &Ju (2018) among patients of Bethel College Teaching Hospital, Indiana, USA. The study indicated 65.3% of its participants who claimed that they try to maintain a healthy weight and eat diet high in fruit and vegetables and those low in saturated fat. Similarly in this current study, above average of the patients have been doing exercise daily, have stopped smoking and alcohol. A high level of behavioral modifications was exhibited by the patients in this study. This finding was in line with the study by Miller, Chandler &Mouttapa (2015) among breast cancer patients in USA, their findings revealed that patients had a good behavioural modification level after counseling 83% of the patients affirmed that they modified their behaviours better after series of counseling.

❖ **What are the attitudes of patients towards social adjustment**

The findings from the study have shown the patients who adjust adequately with social functions, and majority talk about breast cancer in their home and among their peers. This was against the study done by Konwea,(2016) among Breast cancer patients in Ekiti State ,Nigeria. The study revealed 85%ofthepatients who affirmed that eating among people or going to functions posed a great challenge as they felt they were no longer normal like their peers thus it took a while to adjust. In this present study, majority of the patients have advised their family members to go for mammography screening, have made friends with people that have the same condition as theirs while 89.5% have been attending seminars and programs on breast cancer. This however meant that the patients were highly in support of screening and counseling. The above finding agreed with a similar study conducted by Barnes, Brown &McDermott(2012) among breast cancer patients in USA. The findings from their study also revealed that patients were able to adjust through counseling and involving of family members in their care.

❖ **What are the factors affecting behavioural modification of the patient**

From the study findings, the factors affecting behavioral modifications of patients were; counseling, regular medical check up, exercise, eating more of fruits, eating less saturated fatty foods and wearing of clothes to cover their whole body. This was similarly reported by (Costanzo,Lutgendorf& Roeder,2011).

❖ **What are the factors affecting social adjustments among the patients?**

In the study, it was gathered that socialfunctions, talk of breast cancer in their home and among their peers, going for screening, making friends with people that have the same condition and attending seminars and programs on breast cancer were factors that positively affect patients adjustment with social functions. All factors mentioned above have been proven by various studies to affect how well a patient will adjust psychologically to a breast cancer diagnosis. Psychological adjustment is inter related to social adjustment as the mind controls the body (Stafford *et al*., 2013).

V. Conclusion

The study findings have shown that the patients have high level of knowledge about behavioral modifications and social adjustments. Also, the patients have exhibited positive level of behavioral modifications and social adjustments respectively. Counseling, regular medical checkup, exercise ,eating more of fruits, eating less saturated fatty foods and wearing of clothes to cover their whole body were positive factors affecting patients compliance with behavioral modifications. Similarly, social functions, talk of breast cancer in their home and among their peers, going for screening, making friends with people that have the same condition and attending seminars and programs on breast cancer were factors that positively affect patients adjustment with social functions

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