

Depression and Anxiety as Predictors of Perceived Quality of Life in Breast Cancer Survivors

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ABSTRACT

Objective: To investigate the impact of depression and anxiety levels on perceived quality of life (QoL) in breast cancer survivors (BCS) after one year of successful recovery from chemotherapy.

Materials & Methods: A cross sectional research design was followed to study breast cancer survivors (N= 52) on follow-ups from government hospitals of Lahore over a period of two months. The purposive sampling strategy was used. The study also examined the demographic correlates of depression and anxiety among breast cancer survivors. Quality of life (QoL) was measured by using Quality of Life Index Cancer Version III. Depression and anxiety were measured by using Hospital Anxiety and Depression Scale.

Results: A significant negative correlation among depression and overall QoL ($r = -.40^{**}$), health and functioning wellbeing ($r = -.42^{**}$), psychological and spiritual wellbeing ($r = -.32^*$), as well as negative association of anxiety with overall QoL ($r = -.29^*$), and health and functioning wellbeing ($r = -.35^*$), indicated that increased levels of anxiety and depression reduced patients' QoL. The multiple regression analysis found depression and anxiety as significant predictors of overall QoL, health and functioning wellbeing and spiritual and psychological wellbeing. It implies that depression and anxiety seem to influence individual's QoL. The hierarchical regression analysis for Sociodemographic factors, controlling the clinical factors, showed number of children ($\hat{\alpha} = -.36^*$) and level of education ($\hat{\alpha} = -.40^*$) as significant predictors of depression.

Conclusion: Anxiety and depression appear to have a significant negative impact on the overall quality of life and psychological well being of breast cancer survivors. Regular follow ups need to focus on psychological issues that are critical in influencing both physical health and psychological well-being.

Key words: Quality of life, depression, anxiety, breast cancer survivors.

How to cite this article: Naz S, Kamran F. Depression and anxiety as predictors of perceived quality of life in breast cancer survivors. J Dow Uni Health Sci 2016; 10(3): 87-91.

INTRODUCTION

Breast cancer is one of the hundred types of cancer¹. Mainly breast cancer occurs in women but men can also be victims of it². According to The National Cancer Institute a cancer survivor is an individual who survives from the time of diagnosis until he or she gains the balance of his or her life. The caregivers, family members and friends are also impacted by survivorship experience³. The women survival rate from breast cancer is very low in Pakistan⁴.

Depression and anxiety are common psychological consequences of cancer⁵. Research indicated a significant negative effect of depression on Quality of Life (QoL) in cancer patients⁶. The extended, abnormal

and severe anxiety reactions affect patients' normal functioning and social life⁷. Breast cancer has a great effect on a woman's QoL and self-esteem. Ferrans defines QoL as an individual's sense of wellbeing that originates from satisfaction or dissatisfaction with his or her important aspects of life⁸.

There is extensive literature suggesting a crucial role of psychological comorbidities in influencing patients' QoL. A study suggested that chemotherapy and tamoxifen is significant predictor of poorer QoL⁹. A study concluded that lower income & education, unemployment and poor health care services were related with QoL¹⁰. Age also affects QoL as older BCS reported lower QoL and higher level of education appeared to reduce depression¹¹. Depression and anxiety as significant predictors of quality of life and as major psychological conditions were studied in BCS¹². Literature concluded that BCS experienced higher level of anxiety and depression in Pakistan. The results revealed that poor QoL was related with depression in BCS¹³.

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The objective of the study was to investigate the role of depression and anxiety in influencing perceived QoL in BCS in order to understand the psychological consequences of a life threatening illness. The study also aimed to examine the role of socio-demographic factors in influencing depression and anxiety levels among BCS. The current study further tried to explore whether there is a reciprocal/causal relationship between depression, anxiety and QoL?. As studying QoL in BCS may help to find out the long term impacts of breast cancer and can help to improve the QoL of BCS in future.

MATERIALS & METHODS

The present study followed cross sectional within group research design. The sample comprised of 52 female BCS from INMOL and Jinnah hospital, Lahore, after fulfilling required formal ethical procedures. Purposive sampling was used to recruit participants on the following inclusion/ exclusion criteria;

Participants on regular follow-ups at public sector hospitals, post one year of successful chemotherapy, recruited as referrals from the medical professionals. No age range was set to include a diverse population.

Patients with complications were excluded after being screened from the doctors. Patients with minimum basic schooling equivalent to primary school level, who could read and write, were included in the study. The BCS with any recurrence of cancer and having any other type of cancer were excluded. This study was conducted over a period of two months from 1st March, 2014 to 7 May, 2014. The individual assessment was conducted in one session in the absence of family members, when BCS visited outdoor of hospital for their follow up. The measurements included self report questionnaires that were also translated into Urdu for those who cannot speak and comprehend English. Demographics and medical information was taken from their medical reports. All formalities and ethical considerations were fulfilled including participant's consent form and information sheet.

A 14 items Hospital Anxiety and Depression Scale (HADS) developed by Zigmond and Snaith was used to measure depression and anxiety. It has two subscales, depression (7 items, $\alpha=0.70$) and anxiety (7 items, $\alpha=0.74$). All items rated on 4 point scale as some items are rated on 0 to 3 scale and others are rated on 3 to 0 scale. For each scale the scores range is 0 to 21, the high scores means high level of distress. Total score will be achieved by adding two subscales. High scores show high depression and anxiety¹⁴. In the present study the reliability of HADS was 72.

The Quality of Life Index (QLI) Cancer Version III by Ferrans and Powers was used; it measures importance and satisfaction with various areas of life. All items rated on 6 point scale (1-6)⁸. Scores range from 0-30 and calculated by weighting each satisfaction item by its corresponding importance item¹⁵. Total scores and four subscales scores are calculated. The reliability of QLI in BCS was reported .95 & .97¹⁶. In the present study the reliability of QLI was 89.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

RESULTS

Descriptive statistics of demographic characteristics of BCS showed that the mean age of participants is 47.23 with SD=9.21. The participants were categorized according to the marital status as 76% participants were married, 26% BCS had 3 children, 48% participants were educated till primary level and 98% were unemployed. 57% participants belonged to urban areas, 65% lived in nuclear family system and 55% were not satisfied with their financial conditions.

The descriptive statistics of medical factors indicated that mean age of onset of breast cancer was 43.46 years with SD=9.37. The mean age of breast cancer diagnosis was 43.67 years with SD=9.39. 88% BCS had 1-4 years duration of illness and treatment. 38% BCS had stage 1 and 34% BCS had stage 2 of breast cancer. 88% survivors visited the hospital for follow up after 1-6 months. It is showed that 73% survivors come for their regular follow up during 1-2 years immediately after the completion of chemotherapy. 30% BCS had hypertension and 15% BCS had hypertension and diabetes (both) as co-morbidity. 58% BCS used Tamoxifen medicine during survivorship period.

The levels of depression and anxiety among breast cancer survivors are presented in Table 1.

Table 1: Levels of Depression and Anxiety among BCS

Ranges	Depression		Anxiety	
	Frequency	Percent	Frequency	Percent
Normal 0-7	20	38.46	25	48.07
Mild 8-10	24	46.15	15	28.84
Moderate 11-14	8	15.38	12	23.07
Severe 15-21	0	0	0	0
Total	52	100	52	100

These results (in Table 1) indicated that most of the BCS experienced mild depression and normal anxiety.

Table 2 represents the relationship between depression, anxiety and quality of life among breast cancer survivors.

Table 2: Correlation among Depression, Anxiety and QoL

Variables	Anxiety	Depression	Overall QoL	HFSUB	SOCSUB	PSPSUB	FAMSUB
Anxiety	-	.48**	-.29*	-.35*	-.06	-.24	-.07
Depression		-	-.40**	-.42**	-.13	-.32*	-.18
Overall QoL			-	.90**	.60**	.79**	.58**
HFSUB				-	.33*	.69**	.33*
SOCSUB					-	.27*	.44**
PSPSUB						-	.32*
FAMSUB							-

Note. **p<0.01, *p<0.05. QoL (Quality of Life), HF (Health & Functioning), SOC (Social & Economic), PSP (Psychological/Spiritual), FAM (Family subscale).

Results (in Table 2) indicated significant negative correlation of depression and anxiety with overall QoL, HF, PSP, SOC, and FAM which means that depressed and anxious BCS inclined to be less satisfied with their QoL or vice versa. There is a significant positive relationship between depression and anxiety which indicated that anxious BCS are more likely to be depressed because depression and anxiety are often co-morbid. The significant positive correlation between overall QoL and its domains (i.e. HF, SOC, PSP, FAM) showed that BCS tend to be more satisfied with their overall QoL if they were satisfied with their HF, SOC, PSP and FAM life.

The results of multiple hierarchical regression analysis are presented in Table 3.

Table 3: Hierarchical Multiple Regression Analysis Predicting Depression and Anxiety from QoL and Demographic Variables

Predictor	Depression		Anxiety	
	ΔR^2	β	ΔR^2	β
Step1	.36*		.13	
Marital status		-.11		-.05
Number of children		-.36*		-.19
Level of education		-.40*		.11
Monthly income		.18		.16
Number of dependents		-.02		-.20
Financial satisfaction		.20		.30
Step 2	.04		.12	
Overall QoL		-.43		-.93
HFSUB		.00		.17
SOCSUB		.19		.59
PSPSUB		.11		.20
FAMSUB		.12		.10
Total R ²	.40		.25	
N	52		52	

Note. *p<0.05. $\Delta R^2 = R^2$ change. R² = Coefficient of determination. β = Standardized Coefficient. QoL (Quality of Life), HF (Health & Functioning), SOC (Social & Economic), PSP (Psychological/Spiritual), FAM (Family subscale).

A hierarchical multiple regression analysis (in Table 3) indicated that number of children and level of education were the significant strongest predictors of depression among all demographic variables. It is suggested that low level of education and less number of children make BCS more depressed. Marital status, monthly income, number of dependents and financial satisfaction did not emerge as significant predictors of depression. The analysis indicated that overall QoL and HF, SOC, PSP, FAM did not predict depression and anxiety among BCS.

Table 4 shows a multiple linear regression analysis that was carried out to explore that do depression and anxiety predict quality of life.

Table 4: Multiple Linear Regression Analysis Predicting QoL and its Sub Domains

Outcome variables	Predictors	B	S.E	β
Overall Quality of Life	Depression	-.21	.09	-.34*
	Anxiety	-.09	.10	-.13
	R	.42		
	R ²	.17		
	F	5.35*		
Health and Functioning Wellbeing	Depression	-.30	.13	-.33*
	Anxiety	-.19	.15	-.18
	R	.45		
	R ²	.20		
	F	6.49*		
Socio/Economic Wellbeing	Depression	-.09	.11	-.13
	Anxiety	.00	.13	.00
	R	.13	-	
	R ²	.01		
	F	.43		
Psychological and Spiritual Wellbeing	Depression	.19	.11	-.26
	Anxiety	-.09	.12	-.11
	R	.33		
	R ²	.11		
	F	3.18*		
Family Wellbeing	Depression	-.15	.12	-.19
	Anxiety	.01	.14	.01
	R	.18		
	R ²	.03		
	F	.86		

Note: *p<0.05. R² = Coefficient of determination. β = Standardized Coefficient. B=Un-standardized Coefficient. S.E= Standard Error.

These results (in Table 4) revealed that depression and anxiety emerged as significant predictors of overall QoL, HF and PSP. It means that lower the level of anxiety and depression leads to the higher level of QoL. Both depression and anxiety did not emerge as significant predictors of SOC and FAM well being.

DISCUSSION

The current research was conducted to investigate depression and anxiety as predictors of QoL and to explore whether there is a reciprocal association among depression, anxiety and QoL.

Findings of the present research suggested that depressed and anxious BCS inclined to be less satisfied with their QoL or vice versa. These findings are similar with the earlier researches^{13,17-19}. These findings suggested that anxiety and depression are negatively related with QoL among BCS.

The present study indicated that BCS after one year of chemotherapy experienced mild to moderate level of depression and normal to mild anxiety and improved QoL. These results are similar with the earlier findings¹⁷. One reason for these consistent findings can be the time since chemotherapy. The immediate psychological consequences (especially depression and anxiety) of chemotherapy can be reduced with the passage of time.

There are many factors (e.g. physical activity, exercise, social support) that can contribute in reduction of the depression and anxiety levels with the passage of time. A previous study concluded that BCS who had increased physical activity level after diagnosis had better QoL and low intensity of depression²⁰. A meta-analysis concluded that exercise lead towards a little improvement in depressive symptoms²¹. A study concluded that BCS with better social support had improved depressive symptoms and better QoL²².

The findings of present research indicated that number of children and education level was the significant stronger predictors of depression among BCS. These findings are similar with earlier researches^{23-25,11}. The current study showed that age, marital status, occupational status, monthly income and financial satisfaction did not predict depression among BCS. The results further exposed that there was no demographic predictor of anxiety among BCS. These results are similar with the previous research²⁶. The current research indicated that QoL did not predict anxiety and depression. These results are inconsistent with the literature. A study concluded that QoL has negative outcomes like anxiety & depression in BCS²⁷. The present study indicated that anxiety and depression significantly predicted overall QoL, HF and PSP well being. These findings are similar with the earlier findings which suggested that anxiety and depression were considered as indicators of QoL²⁸. Therefore, present study could not find out the bidirectional

relationship between anxiety, depression and QoL. According to Wilson and Cleary model there is reciprocal relationship between anxiety, depression and QoL. But it is difficult to say that which one is the predictor or which one is outcome. There is ongoing debate on this issue²⁹.

CONCLUSION

The study found that anxiety and depression are significant psychological issues that need to be screened and identified for a formal assessment and management in any life threatening chronic condition. Anxiety and depression can have a considerable negative influence on the overall QoL of BCS and significantly affect their psychological well-being. Efforts need to focus on adding quality and not just quantity to life.

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