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Pessimism, Optimism and Psychological Distress in Breast Cancer Women

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The aim of the present study was to investigate the effect of personality traits pessimism and optimism on depression, anxiety and stress in breast cancer surgical patients. The sample included 58 women in the age range of 40-60 years (*M* = 57.80, *SD* = 11.95) scheduled for breast cancer surgery. Interrupted Time Series Design was used. The sample was selected through the Convenience Sampling Technique. The sample was included if they had not other serious diseases such as hepatitis, diabetes, cardiovascular or were not taking any antidepressants. The Life Orientation Test-R (Scheier, & Carver, 1985) was used to measure traits pessimism and optimism, which was translated in Urdu by the author. The Depression, Anxiety and Stress Scale (Talat, 2011) was administered to measure depression, anxiety and stress in these participants at pre-surgery, week 2^{nd} and 6^{th} weeks post-surgery. Results reveal that breast cancer surgical patients having pessimism experience significantly higher levels of depression, anxiety and stress at pre and at 2 points in time (i-e,2^{nd} & 6^{th} week) post-surgery than optimistic women (P <.005). The data support hypotheses. The findings of study have practical implications in providing insight relevant for development and/or modifying trait optimism to overcome psychological distress in breast cancer surgical patients.

Keywords: Breast Cancer, Pessimism, Optimism, Depression, Anxiety, Stress

The personality trait optimism as a protective factor against stressful life events has received considerable attention among researchers on their breast cancer research during last two decades (David, Montgomery, & Bovbjerg, 2006; Miller, Manne, Taylor, Keates, & Dougherty, 1996). Researchers in trait optimism are interested because of its stabilizing effect, (Scheier, & Carver, 1993, Scheier, & Carver, 1992), while for clinicians it is important as predisposing marker for susceptibility to adjustment difficulties (Schou, Ekeberg, Ruland, Sandvik, & karesen, 2004; Schou, Ekeberg, Sandvik, Hjermstad, & Ruland, 2005). Pessimism and optimism are important psychological interpretations in predicting how an individual copes with the stressful life events. The construct optimism is defined as the degree to which an individual expects positive experiences in future while pessimism refers to the degree to which he/she expects negative experiences (Scheier, & Carver 1985). Research suggests that differences in these characteristics lead to variations in the levels of anxiety and depression in individuals when facing traumatic situations such as life threatening disease cancer (Chang, 2001).

Numerous researches established that higher levels of optimism predict lower distress in many populations, including breast cancer patients (Carver, *et al.,* 1993; Epping-Jordan, Compas & Oswiecki, 1999; Moor, *et al.,* 2006 Schou, *et al.,* 2005). Bakker, *et al*., (2006) studied levels of optimism and quality of life in patients diagnosed with breast cancer before and after consultations with the physicians. Their result showed that low levels of optimism and quality of life at pre-visit were associated to higher levels of post-visit anxiety and distress in these women. Deborah and Kim (2013) in a recent study examined levels of optimism, mental health, and quality of life in 51 breast cancer women. Result showed that

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participants having low scores on pessimism reported positive mental health, better functioning and less depressive symptoms than participants with higher pessimism. Similar findings were reported by research on women with high risk families. For example, Geirdal and Dahl (2008) studied relationship between optimism and levels of anxiety, depression and distress in unaffected women belonged to families of high risk of breast and ovarian cancer. Result demonstrated that participants who obtained low scores on optimism experienced higher anxiety, depression and distress at post-consultation. In another study Pinquart, Frohlich, and Silbereisen (2007) examined effect of optimism and pessimism on psychological well-being in 161 newly diagnosed patients with different cancers. Optimism, pessimism and positive and negative emotions of the patients were examined before first start of the chemotherapy and then at 9 months follow up. Result showed pre-chemotherapy psychological well- being in patients with higher optimism than those with lower pessimism. Further, perception of the chemotherapy related side effects were more heightened among pessimists than optimists.

Studies demonstrate that individuals with trait optimism face and handle challenging situations more effectively than do the pessimists and thus benefit psychologically (Brissette, Scheier & Carver, 2002; Segerstrom, Taylor, Kemeny & Fahey, 1998) and physically (Rainkkonen, Matthews, Flory, Owens, & Gumpt; 1999; Scheier & Carver, 1985). There is also empirical evidence that optimists adjust more favorably to important life transitions than the pessimists (Aspinwall, & Taylor, 1992). Schou, Ekeberg, Sandvik and Ruland (2007) examined effect of optimism and pessimism on stability concerning to bad news (i-e, positive lump notes, & more advanced cancer stage) on levels of anxiety and depression in breast cancer women at time of diagnosis, three months and 12 months post-surgery. Their result revealed that stability in optimism and pessimism of these women remained unchanged, however a significant decline in levels of anxiety and depression of optimistic women was found over the same period.

Cancer after cardiovascular disease is one of the most serious and common health problem in the world and researchers in this direction have been continuing to find solutions in screening, treatment, and preventing. Every year ten million new invasive cancer in patients of both sexes are diagnosed, out of which annual 10% increase are diagnosed with breast cancer which after lung cancer makes it the second most common site of malignant (American Society of Clinical Oncology, 2012). In Pakistan one in every nine women has the highest rate of breast cancer in South Asia with 31.50% cases per 10, 0000 women per year (“Pakistan breast cancer”, 2014). According to a report 38,285 to be exact cases were registered in Khyber Pakhtunkhwa (KPK) during 2012. (“Breast Cancer Awareness”, 2013). In another report 40,000 cases were reported in KPK during 2013 (“Public Health”, 2014).

The diagnosis of the breast cancer is a psychological trauma for it elicits greater distress in effected as a part of body, which is the symbol of sexuality and womenhood is diseased. Hence when facing its diagnosis, not only the best medical treatment but also psychological adjustment to the disease are the most important and required (“Pakistan breast cancer rising”, 2014). Keeping in view the above mentioned facts it is imperative to examine the role of personality traits pessimism, optimism in relation to depression, anxiety and stress in breast cancer surgical patients The present study was therefore, designed to investigate effect of pessimism and optimism on levels of depression, anxiety and stress in breast cancer surgical patients before and two weeks and six weeks after their breast cancer surgery.

Hypotheses

Following hypotheses were formulated.

1. Women having trait pessimism would experience higher levels of depression, anxiety and stress at pre-surgery stage of their breast cancer than optimistic women.
2. Pessimistic respondents will obtain higher score on the scale measuring depression, anxiety and stress at post-surgery stage than optimistic respondents.

Method

Study Design

In present study the Interrupted Time Series Design was used to examine effect of personality traits, that is, pessimism and optimism on the levels of depression, anxiety and stress in breast cancer surgical patients. Convenience Sampling Technique was used for selection of the sample.

Participants

The sample included 58 women in age range of 40-60 years (*M* = 57.80, *SD* = 11.95) scheduled for excisional breast biopsy and lumpectomy in the Institute of Radiotherapy and Nuclear Medicine (IRNUM) and Khyber Teaching Hospital (KTH) , Khyber Pakhtunkhwa, Peshawar. From the surgical point of view there is a small difference between excisional biopsy and lumpectomy as the latter needs a large surgical margin (reported by the surgical doctors) and therefore these study populations are usually combined into a single sample (e.g., Montgomery, David, & Goldfarb, 2003). Forty one women (82.00%) of the sample were married while the nine (18.00%) were unmarried. The sample belonged to the middle socio-economic class and had completed at least eight years schooling. The sample was excluded if they had any other serious disorders such as diabetes, hepatitis and cardiovascular or were taking any antidepressant drugs.

Instruments

Depression Anxiety and Stress Scale (DASS)

DASS is a self-report questionnaire designed to measure depression, anxiety and stress and is available in two forms, DASS-42 and short form DASS-21. (S.H. Lovibond & P.F. Lovibond, 1995b & P.F. Lovibond & S.H. Lovibond, 1995a). It consists of 42 items with three subscales namely, depression, anxiety, and stress, each includes 14 items. Score on each item range from 0-3 with following response categories: Do not apply to me at all (0), Apply to me to some extent (1), Apply to me to a considerable degree (2), Apply to me very much (3). In case of DASS-21, the summed of final score of each item is multiplied by two (x2).The maximum score on the depression, anxiety, and stress subscales is 28+ 20+, and 34+ respectively. Alpha coefficients computed for the DASS is 0.91 for depression, 0.84 for anxiety and 0.90 for stress subscales (N=2914, n = 1044 males, & n = 1870 females between 17 to 69 years of varying backgrounds). The correlation between DASS depression scale and Beck Depression Inventory found is 0.74 and between its Anxiety scale and Beck Anxiety Inventory is 0 .81 (P. F. Lovibond & S.H. Lovibond, 1995a). It has been translated in 28 languages. Aslam and Tariq (2007) translated it in Urdu. Later on it was modified by Talat (2011). In present study Urdu version (Talat, 2011) was used. The computed alpha for the Urdu version of DASS is 0.94. For the present sample the computed alpha is 0.91.

Life orientation Test- Revised (LOT-R)

The LOT was developed by Scheier and Carver (1985). It measures dispositional optimism and pessimism in terms of generalized outcome expectations. In 1994 it was revised (Scheier, Carver & Bridges, 1994). The LOT-R is brief than the original consisting 10 items including four filter items (that are not scored as part of the scale). Score on each item range from 0-4 with following response categories, (0*)* strongly disagree, (1) disagree, (2) neutral (3) agree and (4) strongly agree. Maximum score on the scale is 24. Three positively worded items (1, 4, & 10) measure optimism and three negatively worded items (3, 7 & 9) measure pessimism. The validity of the scale determined by item sum correlation ranged from 0. 43 to 0.63. The reliability of the LOT-R is within expectable range. Cronbach alpha is 0.78. Although the L0T has in past been treated a unidimensional measure of dispositional optimism, later studies revealed that it has a bidimensional structure (Chang, *et al*., 1994, 1997). As majority of the sample included in the study could not read and understand English because of minimum educational level. The test was translated in Urdu using Back Translation Technique by the authors of the present study.

The test was translated by two experts having command on both English and Urdu languages. Both these translators were the faculty members of the Jinnah College for Women, University of Peshawar. The translated versions were then carefully examined by experts committee. Finally the Urdu version was prepared in the light of the expert's suggestions. Internal consistency of Urdu version of the

scale was determined by computing alpha coefficients. The results showed that alpha computed for optimism is 0.79 and for pessimism is 0.78. Validity of the Urdu scale was determined by item sum correlations method. The inter item-correlations for optimism scale ranged from 0.46 to 0.72 and correlations of the items to total score ranged from 0.52 to 0.78. For the pessimism scale the inter item correlations ranged from 0.39 to 0.74 and correlations of the items with total scores ranged from 0.48 to 0.73. The alpha computed for the present study is .81.

Procedure

After getting permission from the hospital authority, verbal consent from each respondent was obtained. Women, who met the eligibility criteria were individually contacted, informed about the nature of the study and their cooperation was requested. All the scales were individually administered on each woman before the day of their breast cancer surgery at the scheduled hospital time. The same tests were again administered on these women after two weeks and six weeks of their breast cancer surgery. Participants who obtained score greater than 7 on the positively worded items of LOT-R were categorized as optimists, while those who obtained less than 7 score on the negatively worded items were kept in the category of pessimists. Depression, anxiety and stress of these respondents were measured using scores they obtained on DAS.

Results

Table 1

Repeated Measure ANOVA for Comparing Depression Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women		Pre-Surgery		2nd Week-PS		6th Weeks-PS			
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*P*
Pessimistic	32	20.86	10.39	24.08	8.33	28.70	7.83	5.82	.005
Optimistic	26	12.75	10.44	13.01	13.57	13.90	14.47	0.45	.04

Note: PS=Post- Surgery

Data in table 1 demonstrate significant difference in depression scores of pessimistic and optimistic breast cancer women across three time points on depression scale of the DAS. These results suggest that pessimistic women experience higher levels of depression at pre-surgery, 2nd week and 6th weeks post-surgery than optimistic respondents.

Table 2

Post Hoc Analysis for Comparing Mean Difference for Depression Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women	*I*	*J*	*Difference I-J*	*SE*	*P*	*95% CI*	
						LL	*UL*
Pessimistic	Pre-S	2nd Week PS	3.22*	2.04	.04	8.42	.06
		6th Weeks PS	7.84*	2.17	.01	10.48	1.59
	2nd Week	Pre-S	3.22*	2.04	.04	.06	8.42
		6th Weeks PS	4.62*	1.07	.04	3.99	.40

	6th Weeks	Pre-S	7.84*	2.17	.01	1.58	10.48
		2nd Week PS	4.62*	1.07	.04	.40	3.99
Optimistic	Pre-S	2nd Week PS	-0.26	.29	.90	.64	.57
		6th Weeks PS	1.15	.37	.84	.85	.70
	2nd Week PS	Pre-S	0.26	.29	.90	.57	.64
		6th Weeks PS	0.89	.34	.91	.73	.66
	6th Weeks	Pre	1.15	.37	.84	.70	.85
	PS	2nd Week PS	1.89	.34	.91	.66	.73

Note= Pre-S= Pre- Surgery, PS=Post- Surgery,

Table 2 demonstrates results of Post Hoc test. There is significant difference between pessimistic and optimistic breast cancer women on depression scale of the DAS at three times point's measurement.

Table 3

Repeated Measure ANOVA for Comparing Anxiety Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women		Pre-Surgery		2nd Week-PS		6th Weeks-PS		*F*	*p*
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*		
Pessimistic	32	12.79	09.44	17.30	14.49	18.88	14.43	0.24	.98
Optimistic	26	7.73	3.50	7.75	3.51	7.88	3.46	5.84	.005

Note: PS=Post- Surgery

Data in table 3 demonstrate significant difference in terms of anxiety in pessimistic and optimistic breast cancer women across three times points.

Table 4

Post Hoc Analysis for Comparing Mean Difference for Anxiety Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women	*I*	*J*	*Difference I-J*	*SE*	*P*	*95% CI* *LL*	*UL*
Pessimistic	Pre-S	2nd Week PS	-4.51*	2.04	.04	8.42	.06
		6th Weeks PS	-6.09*	2.17	.01	10.48	1.59
	2nd Week PA	Pre-S	4.51*	2.04	.04	.06	8.42
		6th Weeks PS	1.58	1.07	.10	3.99	.40

	6th Weeks PS	Pre-S	6.09*	2.17	.01	1.58	10.48
		2nd Week PS	1.58	1.07	.10	.40	3.99
Optimistic	Pre-S	2nd Week PS	-0.02	.29	.90	.64	.57
		6th Weeks PS	-0.15	.37	.84	.85	.70
	2nd Week PS	Pre-S	0.02	.29	.90	.57	.64
		6th Weeks PS	-0.13	.34	.91	.73	.66
	6th Weeks PS	Pre-S	-0.15	.37	.84	.70	.85
		2nd Week PS	0.13	.34	.91	.66	.73

Note: Pre-S=Pre-Surgery, PS=Post- Surgery

Table 4 demonstrates results of Post Hoc test. There is significant difference between pessimistic and optimistic breast cancer participants on the Anxiety Scale across three times measurement. The only no significant difference in pessimistic participants was found between 2nd week and 6th weeks post surgery.

Table 5

Repeated Measure ANOVA for Stress Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women		Pre- Surgery		2nd Week PS		6th Weeks PS			
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*P*
Pessimistic	31	25.23	7.14	30.57	15.75	34.01	43.58	4.68	.03
Optimistic	26	13.88	1.74	14.09	7.56	14.98	14.27	.07	.76

Note: PS= Post- Surgery

Results in table 5 show significant difference in levels of stress in pessimistic and optimistic breast cancer participants across three times measurements on the DAS.

Table 6

Post Hoc Analysis for Comparing Mean Difference for Stress Scores on the DAS across Three Time Points in Pessimistic and Optimistic Breast Cancer Women

Groups of Breast Cancer Women	*I*	*J*	*Difference I-J*	*SE*	*P*	*95% CI*	
						LL	*UL*
Pessimistic	Pre-S	2nd Week PS	-5.34*	2.7	.05	15.11	14
		6th Weeks PS	-8.78*	3.89	.04	16.25	33
	2nd Week PS	Pre-S	5.34*	3.73	.05	.14	.5.11
		6th Weeks PS	-3.44	1.04	.44	2.93	..31
	6th Weeks PS	Pre-S	8.78*	3.89	.04	.33	.6.25
		2nd Week PS	3.44	1.03	.44	1.31	.93

Optimistic	Pre-S	2nd Week PS	0.21	1.03	.82	2.35	..89
		6th Weeks PS	1.1	1.27	.51	3.47	..78
	2nd Week PS	Pre-S	0.21	1.03	.82	1.88	..35
		6th Weeks PS	-.89	.61	.32	1.88	55
	6th Weeks PS	Pre-S	1.1	1.27	.51	1.77	..47
		2nd Week PS	.89	.61	.32	.65	..88

Notes: Pre-S=Pre-Surgery, Post-S=Post-Surgery

Results shown in table 6 reveal Post Hoc analyses of two groups of participants. There are significant differences between pessimistic and optimistic breast cancer participants on the Stress Scale of the DAS across three times measurements. The only no significant difference in pessimistic participants was found between 2nd week and 6th weeks post surgery.

Discussion

The present study examined effect of personality traits pessimism and optimism on the emotional distress experience by breast cancer surgical patients. Findings revealed significant difference between two groups of women in terms of depression, anxiety and stress these women experience before and at 2 points in times (i-e, 2 weeks & 6 weeks) after their breast cancer surgery. These results clearly support our both hypotheses which postulated significant effect of traits pessimism and optimism on psychological distress breast cancer surgical participants' experience. Data (table, 1, 2, 3 4, 5, & 6) show that pessimistic women obtained higher mean scores on three scales of the DAS than optimistic women. These results are in accordance with our expectations based on previous studies which demonstrate a strong association between optimism, pessimism and psychological distress in patients from coronary artery bypass surgery (Scheier, *et al*., 1989) and in breast cancer surgical patients (Carver, *et al.,* 1993; David, *et al.,* 2006).

Individuals with higher levels of optimism have a firm believe that good rather than bad things will happen while pessimists are devoid of it (Scheier, Carver & Bridges, 1994). Dispositional optimism as described by Scheier and Carver an influential personality trait has important consequences on the way individuals react to stressful life situations/events such as cancer. Numerous studies are in line with this direction. For example, Norman and Brain (2007) examined effect of dispositional optimism on anxiety and breast cancer worries in 735 women having breast cancer history in family. The participants were referred to counseling. Result showed that women with higher levels of dispositional optimism obtained low score on the anxiety scale not only immediately after counseling but even at 9 months follow up than baseline scores. Further, these women were less worried about their disease than those with low dispositional optimism. Schou, Ekeberg, Ruland, Sandvik and Karesen (2004) studied prevalence and predictive factors for emotional morbidity (anxiety & depression) and optimism, pessimism in 165 newly diagnosed breast cancer women and followed one year after surgery. Findings revealed 34% and 20% prevalence of anxiety and depression at the time of diagnosis and 26% and 9% respectively after one year. However, prevalence of anxiety and depression was higher in pessimistic women at all assessments than the optimistic women.

Wiering, Albada, Bensing, Ausems and Dulmen (2013) in a study examined impact of counselee's optimism, anxiety and perceived risk (that hereditary breast cancer runs in family) on the effectiveness of communication for breast cancer counseling. Their result showed that compared to higher optimistic counselees, levels of anxiety of low optimistic counselees were higher after counseling. The results further revealed that if level of anxiety in counselees was higher, significantly less reassurance statements were spoken by counselors, but they emphasized on reassurance if counselees were less optimistic. Increased in reassurance was associated with low level of anxiety and higher optimism after counseling.

Numerous researches reported similar findings in other patients. For instance Beitel, *et al.,*(2012) examined impact of dispositional optimism on depression, personality disorders, post-traumatic stress disorders and pain related to emotional stain in 150 opioid dependents patients who were enrolled in methadone maintenance treatment. Result demonstrated that those patients whose optimism level was higher obtained low scores on the scales which measured depression, personality disorders and PTSD in these patients after the treatment. Further it was found that patients having lower levels of dispositional optimism reported lifetime chronic pain. Zwahlen, *et al.,* (2011) examined relationship between hope, optimism, anxiety and depression in 50 patients with oral cavity cancer after their surgery. Result revealed that both hope and optimism were negatively correlated with levels of anxiety and depression. Moor, *et al.,* (2006) in a study investigated relationship between optimism, anxiety, depression and health related quality of life in ovarian cancer women at start and at end of the chemotherapy. The researchers also examined effect of optimism on the levels of cancer antigen CA/125 (a substance which under favorable conditions stimulates production of antibodies) among these women. Their result revealed negative association between optimism, anxiety and depression and positive relation between optimism and health related quality of life at both measures. Further, greater decline in levels of CA/125 was found among women having higher optimism at the start of the chemotherapy. Allison, Guichard and Gilain (2000) reported similar findings in head and neck cancer patients.

The available empirical evidence strongly supports results of the present study and research hypotheses concerning effect of personality traits on levels of depression, anxiety and stress in breast cancer surgical patients.

Implications

The findings of the present study may have practical implications in providing information regarding development and /or modifying the traits optimism in breast cancer patients, to overcome their depression, anxiety and stress, to improve mental health and to modify their quality of life.

Limitations

The main limitation of the present study is that data was obtained from a small sample. Sample size was not large enough; therefore, results cannot be confidentially generalized. Second, as sample of the study included breast cancer surgical patients, it is unknown whether these results can be generalized to other surgical patients.

Suggestions

Following suggestions are recommended in the light of limitations of study.

1. Future research needs to be conducted on larger and diverse sample to generalize the results confidently.
2. Similar research needs to be conducted on other surgical patients such as mastectomy and coronary bypass surgical patients.
3. Future researchers need to examine effects of personality traits (optimism & pessimism) at more than at 3 points in time to know stability in optimism and pessimism and its effect on psychological distress.
4. Effects of other variables such as coping responses/strategies on optimism and pessimism in relation to psychological distress may be examined.

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