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Perceived Satisfaction with Social Support and Cancer Specific Psychological Stress in Newly Diagnosed Breast Cancer Women

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The present study examined effect of perceived satisfaction with social support on psychological stress in breast cancer women. The sample consisted of (*N*=80) diagnosed breast cancer women recruited from Institute of Radiotherapy and Nuclear Medicine (IRNUM) of Peshawar, Khyber Pakhtunkhwa, Pakistan. The age range of sample was 40 to 65 years (*Mage* = 55.80). All these women were married, belonged to middle socio-economic class, had at least matriculated and were unemployed. Women who were pregnant, had past history of psychiatric disorders or were taking antidepressant drugs were not included. Convenience sampling technique was used to select the sample. The sample was assessed using two standardized scales; the Social Support Questionnaire (I.G,Sarason, Levien, Bahsan, & B.R, Sarason, 1983) and the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979). The *t*-test analyses were computed to determine significance of difference between two groups of women. Results show that breast cancer women having higher perceived satisfaction with social support and more number of friends, relatives and family members available, experience low level of stress than those having low perceived satisfaction with social support and less friends, relatives and family members available. The data support hypotheses and findings conclude that social support mitigates harmful effects of stress in breast cancer women.

Key words: Breast Cancer, Perceived Satisfaction, Social Support, Psychological Stress

Breast cancer is a major public health problem and a significant cause of morbidity and mortality among women. It is the second leading cause of death due to cancer in women, exceeded only by lung cancer (American Cancer Society, 2007). According to the Pink Ribbon Oncologists (Breast Cancer Awareness Group) Pakistan has the highest rate of breast cancer in Asia which accounts for 22.9% of all cancer (excluding non melanoma skin cancer) in women ("Pakistan breast cancer raising",2014 January 22). In 2008 breast cancer caused 4, 58,503 deaths worldwide (13.7%) in women (World Cancer Report, 2008). It is more than hundred times more common in women than men, although men tend to have poorer outcomes due to delays in diagnosis (National Cancer Institute, 2011; World Cancer Report, 2008). The progress and survival rates vary depending upon, type, stage, treatment, and geographical location of the patient. In West survival rate is higher (World Cancer Report; 2008). In England, for example, more than eight out 10 women (84%) that are diagnosed with breast cancer survive for at least five years ("Cancer survival in England", 2009). In developing countries survival rate is much poor. According to a local estimates Pakistan sees 90,000 cases of breast cancer which results in almost 40,000 deaths per year ("Deaths from breast cancer", 2011 January 22). In KPK during 2012, 38,285 to be exact cases were registered ("Breast cancer awareness", 2013 October, 2). In another report 40,000 cases were reported in KPK province during 2013 ("Public health", 2014 February, 5). The Pink Ribbon Pakistan mobile mammography unit is working to reduce the number through public awareness and by providing free mammography examination to the poor classes. The accurate figure is most likely to be higher because many cases go undiagnosed, untreated and therefore not reported.

Breast cancer originates from breast tissues, most commonly from inner lining of milk ducts or lobules that supply milk to ducts. Cancer originating from ducts is called ductal carcinoma, while those originating from lobules are called lobular carcinoma. This disease occurs both in human and other mammals. Maximum cases occur in women (Sariego, 2010). The treatment of breast cancer include, medication such as hormonal and chemotherapy, radiation

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or immunotherapy and surgery (Florescu, *et al.*, 2012). But single largest treatment that increases likelihood of care is surgery, besides, several chemotherapies are also given. Radiation after breast conserving surgery not only improves the local relapse rates but in many cases the overall survival (Buchholz, 2009). The major symptom of this disease is usually a lump feels different from the rest of breast tissues. More than 80% of breast cancer is diagnosed when women feel a lump in their breast. The initial breast cancer is detected through mammogram. Lumps found in armpits also indicate breast cancer (American Cancer Society, 2007; Merck Manual of Diagnosis & Therapy, 2003).

Previous researches on psychological effects of breast cancer focused on poor prognosis because of aggressive forms of surgery such as mastectomy and adjuvant therapies (chemotherapy) that had a lot of harmful side effects (Deans, 1987; Wolmark, & Fisher, 1983). Advances in early detection, diagnostic methods and medical and surgical treatments not only improved prognosis of the disease, but have also reduced significant adverse side effects. Approximately 50% women with breast cancer now can survive at least 15 years and over 95% with localized disease survive five years or more (American Cancer Society, 2007). Despite these advances, treatment and recovery from breast cancer is still highly stressful (Burgess, *et al.*, 2005).

The process of adjustment to breast cancer in women has been studied in relation to various factors. The interpersonal resources available and social relationships of patients are factors associated with adjustment process to breast cancer. The most common amongst these is social support during treatment and recovery available to breast cancer women (Makabe, & Nomizu, 2007; Morrison, Hislop, Mears, & Lisa, 1991). Numerous research focused on relationship between social support and adjustment process to breast cancer in women (Alferi, Carver, Antoni, Weiss, & Duran, 2001; Helgeson, Snyder, Seltman, 2004; Kornblinth, *et al.*, 2003). Bloom (1982) studied relationships between social support, coping, and three measures of adjustment, namely, psychological distress, self-concept and sense of power in breast cancer women. Results showed that two components of social support, i-e, perception of family cohesiveness and amount of social contact had direct effects on coping and indirect effects on all three measures of adjustment. Contrary to social support, being employed and of higher socio economic status had significant effects on adjustment measured either by self-concept or sense of power. care, six weekly support and imagery sessions on coping, quality of Richardson, *et al.*, (1997) using clinical trial methodology, differentiated effect of standard life and immune functions in women at pre and post-completion stage of treatment for primary breast cancer. Their result revealed that for all women Interferon Gamma increased, Neopterin decreased, Natural Killer Cell Activity (NKCA) remained unchanged and immune responses and quality of life improved. Compared to standard care, support and imagery sessions improved coping skills and perceived social support. Compared to support, imagery sessions reduced stress and improved quality of life. Both interventions, however, improved coping attitudes and perception of social support.

Several researches demonstrated a close association between emotional support, lower distress and higher quality of life (Butler, Koopman, Classen, & Spiegel, 1999; Helgeson, & Cohen, 1996). Arora, *et al.*, (2007) for example, examined impact of perceived helpfulness of informational, emotional and decision making support the newly diagnosed breast cancer women received from family, friends and health care providers. Their findings yielded that at baseline, emotional support and at five months follow-up, emotional and informational support was significantly related with the patients' health related quality of life and self-efficacy. Weller and Dziegielewski (2004) in a study of healthy women found lower body image disturbance because of romantic partner support.

Researchers have also focused on relationship between social support and breast cancer in terms of physical recovery. For example, Funch and Mettlin (1982) investigated relationship between various types of support and short term physical recovery from breast cancer and psychological adjustment in three to 12 months post-operative breast cancer women. Result revealed significant correlation between social and professional support and psychological adjustment, and between financial support and physical recovery. Earlier research suggests that social support alleviate negative effects of breast cancer on women's adjustment process (Butler, *et al.*, 1999; Helgeson, & Cohen, 1996). Numerous researches in West have focused on beneficial effects of social support on breast cancer women's adjustment to disease during treatment and recovery (Arora, *et al.*, 2007; Fagundes, Bennett, & Alfano, 2012; Helgeson, *et al.*, 2004; Richardson, *et al.*, 1997; Spiegel, & Sephton, 2001).

In traditional society of Khyber Pakhtunkhwa (KPK) majority of the people prefer to live in joint family system where they provide services free of cost to their family members (parents, siblings, grandparents, uncles, aunts & sisters in law) in times of need as well as in routine. People from the very early age are socialized and expected to respect elders, love children, help poor and needy, and be with them in critical situations to make them feel safe and secure. These values and norms are internalized by people and from the very beginning they learn to provide support (emotional, informational, social, & financial) to the family members and significant others in times of need. This belief that there are people available who care about an individual and who would try to help if help was needed is the key factor in alleviating stress one experiences and in promoting physical and psychological health. In their two models of social support: main or direct effect and stress buffering effect, Cohin and Wills (1985) proposed that social support has beneficial effect irrespective whether a person is under stress (main or direct effect), while the stress buffering model suggests that social support protects the individual from harmful psychological and physiological influences of stress. Keeping in mind the traditional nature of KPK with predominant emphasis on the joint family system, the present study was designed to examine the effect of stress buffering model (Cohin, & Wills, 1985) of social support on cancer specific psychological stress breast cancer women experience at the time of diagnosis of their disease.

Hypotheses

The following hypotheses were formulated.

1. Newly diagnosed breast cancer women having higher perceived satisfaction with social support would experience low levels of stress than those with low perceived satisfaction.
2. Participants who perceive higher number of significant others available (to them) would experience low stress as compared to those perceive low number of significant others.
3. The levels of stress would be significantly higher in participants having low SSQ family scores than those with higher family scores.

Method

Design

Between Subjects Design was used to investigate effect of perceived satisfaction with social support on the stress levels in newly diagnosed breast cancer women. For selection of the sample Convenient Sampling Technique was used.

Participants

The sample included 80 newly diagnosed breast cancer women with stage O-1 (stage O is a pre-cancerous or marker condition) either ductal carcinoma (cancer originating from milk duct) or lobular (supply milk to the duct) carcinoma verified by the medical record review. The age range of the sample was 40 to 65 years (*M*=55.80). The sample was selected on the basis of following criteria. Married women who belonged to middle socio-economic class, had at least matriculated and unemployed were included. Women being pregnant, had past history of psychiatric disorders, dementia, thyroid disorders, serious cardiovascular disorders, immune disorders such a hepatitis and diabetes or were taking or had taken antidepressant drugs were not included.

Instruments

Social Support Questionnaire (SSQ)

It is a self reported questionnaire, available in two forms: Original 27 items SSQ (Sarason, *et al.,* 1983) and adopted short form, SSQ-12 (I.G,Sarasons; B.R,Sarason, Shearin, &, Pierce, 1987) designed to measure degree of satisfaction with perceived social support and number or perceived availability of support available in a particular situation. In present study original SSQ-27 was used. Each item having two parts measures (1) number of available others (Number or Perceived Availability Scores, SSQ-N), and (2) degree of satisfaction with perceived social support (Satisfaction Scores, SSQ-S). Respondents on a 6 point Likert Scale rate levels of satisfaction with social support from 1 (very dissatisfied) to 6 (very satisfied). Maximum SSQ-N score is 243 and maximum SSQ-S score range from 27 to 162. Mean satisfaction score is obtained by adding satisfaction score and dividing by its corresponding number of items. Similarly mean number score is obtained. The SSQ family score is obtained by adding total number of family members. Alpha coefficient for SSQ-N is 0.97 and for SSQ-S 0.94.The Test- retest reliability for SSQ-N **(**Number or Perceived Availability Scores) and SSQ-S (Satisfaction Scores) with four week interval is 0.90 and 0.83 respectively. The inter-item correlations determined by internal consistency method for Social Support Questionnaire -N **(**Number or Perceived Availability Scores) range from 0.35 to 0.71 and correlations of items with total score range from 0.51 to 0.79. For the Social Support Questionnaire-S (Satisfaction Scores) inter-item correlations range from 0.21 to 0.74 and correlations of items with total score range from 0.48 to 0.72. Alpha computed in present study is 0.81.

Impact of Event Scale (IES)

It is a 15 items self reported instrument to measure current subjective stress to any event (Horowitz, *et al.,* 1979) and available in two forms, original 15 items and revised 22 items (Weiss, & Marmer, 1997). The IES has two sub-scales: Intrusion and Avoidance. Intrusion responses include repeated thought about the trauma. Avoidance includes effortful avoidance of situations that remind the trauma. The Intrusion subscale includes, seven items and the Avoidance consists of eight items. Score on each item range from 0 – 5 with following response categories, not at all (0) rarely (1) sometime (3) and often (5). The author didn't explain this unusual Likert-type scale with uneven quantification intervals between sometime and often. Respondents rate frequency of their thought in past seven days. Maximum score range from 0 to 75. High score indicates higher perceived level of stress. Score can be separated into following categories. Mildly significant level of stress (9-25), moderately significant level of stress (26-43), and (44-75) severe post traumatic stress. As purpose of present study was to measure level of stress caused by perceived satisfaction with social support, therefore, s analysis was not run on the subscales of the IES separately. Test-retest reliability of the scale is 0.87 for total stress score, 0.89 for Intrusion subscale and 0.79 for Avoidance subscale. The split half reliability of the total score is 0.86. Validity established by internal consistency method is 0.78 for the Intrusion and 0.82 for the Avoidance subscale. A correlation of 0.42 ($P < .0002$) between Intrusion and Avoidance subscales indicates that two subscales are associated but do not measure identical dimensions. The IES has been found a valid and reliable instrument in adult cancer patients including breast cancer (Osowiecki & Compas, 1998, Thewes, Meiser & Hickie, 2001). In present study alpha computed is 0.80.

Procedure

After obtaining formal permission from the hospital authority data were collected from the participants. Women who met the eligibility criteria were given information regarding the purpose of the study and their verbal consent was obtained. Each woman was individually interviewed at scheduled hospital time. If a woman could not meet at a regular scheduled hospital time, a separate time was arranged to minimize her burden. Women were classified as high perceived satisfaction and low perceived satisfaction groups on the basis of score they obtained on the Social Support Questionnaire (Sarason, *et al.,* 1983) and their stress level was measured on the Impact of Event Scale (Horowitz, *et al.,* 1979). The investigator thanked each woman for her cooperation.

Results

Data presented in table 1 reveal significant difference in the levels of stress between high and low perceived satisfaction groups of women. Women having higher perceived satisfaction with social support experience low level of stress as compared to women with low perceived satisfaction. These results support our first hypothesis.

Result shown in table 2 demonstrates significant difference in stress level of the respondent. Breast cancer women who perceived higher number of significant others available to them experience less distress than those with perception of low number of significant others available.

Result in table 3 shows that perceived satisfaction with social support significantly influences the stress levels of the respondents. Women who perceived higher number of family members available experience significantly low level of stress than those who perceived less number of family members available.

Table 1

Mean Difference between Breast Cancer Women having High and Low Perceived Satisfaction with Social Support on the Impact of Event Scale

	n	*M*	*SD*		*95% CI*		*Cohen's d*
CBreast Cancer Women				*t*(78)	*LL*	*UL*	
HSPSS	42	41.44	15.93	2.12*	0.48	13.31	.19
LSPSS	38	48.35	19.98				

Note: HSPSS=Higher satisfaction with perceived social support, LSPSS=Low satisfaction with perceived social support, LL=Lower limit, UL= Upper limit

Table 2

Mean Difference between Breast Cancer Women having High and Low Perceived Number Scores on the Impact of Event Scale

	n	*M*	*SD*			95% CI		Cohen's d
Breast Cancer Women				*t(78)*	*p*	*LL*	*UL*	
HPNS	42	41.65	14.20	2.12	.04	.14	15.11	.22
LPNS	38	49.13	18.57					

Note: High Perceived Number Scores, (Higher number of perceived availability of others), Low Perceived Number Scores (Low number of perceived availability of others), LL=Lower limit, UL= Upper limit

Table 3

Mean Difference between Breast Cancer Women having High and Low Perceived SSQ Family Scores on the Impact of Event Scale

	n	*M*	*SD*			*95% CI*		*Cohen's d*
Breast Cancer Women				*t(78)*	*p*	*LL*	*UL*	
HSSQFS	42	8.90	18.62	3.02	.006	3.08	17.36	.94
LSSQFS	38	38.68	12.94					

Note: HSSQ FS=Higher number of perceived availability of family members, on the Social Support Questionnaire, LSSQ FS= Low number of perceived availability of family members, on the Social Support Questionnaire, LL=Lower limit, UL= Upper limit

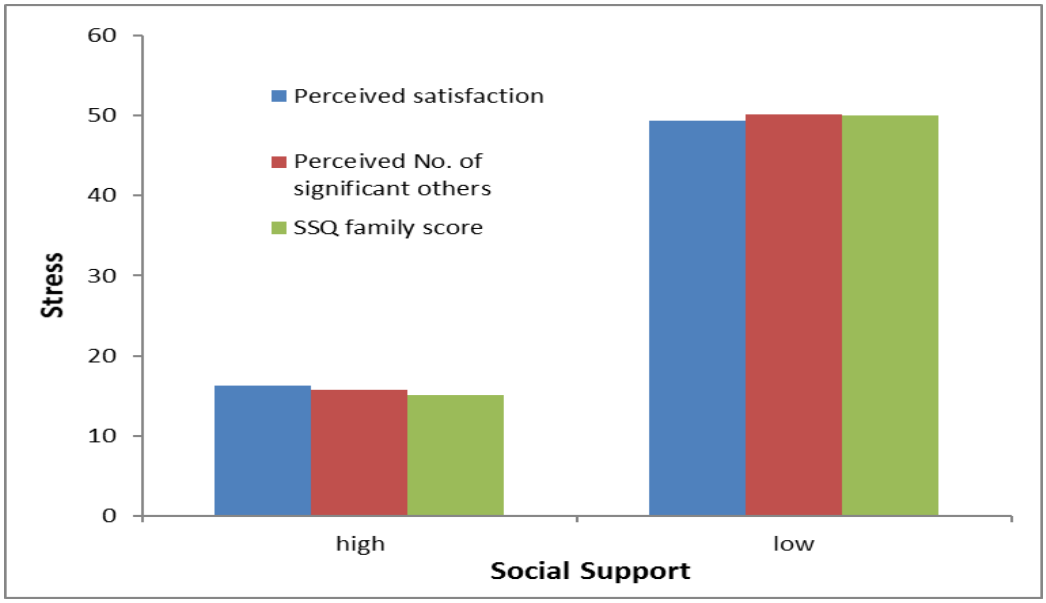

Figure: Breast Cancer women having higher perceived satisfaction with social support scored low on The Impact of Event Scale

Discussion

The present study examined effect of social support on the cancer specific psychological stress in the newly diagnosed breast cancer women. Findings indicated significant effect of the higher perceived satisfaction with social support on the psychological stress in newly diagnosed breast cancer women. The results clearly support the first hypothesis. Data demonstrate significant difference between stress levels of high perceived satisfaction and low perceived satisfaction groups of breast cancer women. Breast cancer women having higher perceived satisfaction with social support experienced low levels of psychological stress as compared to women who perceived low perceived satisfaction. The findings of the present study are in line with the earlier research which demonstrate positive association between perceived satisfaction with social support and better psychological outcomes including lower psychological stress (Bloom, 1982; Simpson, Carlson, Beck & Patten, 2002) and decreased depression (Hann *et al.,* 2002). Research suggests that perceived satisfaction with social support plays an important role in health outcomes (B.R,Sarason, I.G,Sarason & Pierce, 1990; Trunzo & Pinto, 2003; Vrabee, 1997). Evidence suggests that personal and social adjustment, health maintenance, and recovery from illness can be influenced significantly by an individual' access to supportive others (Nuckolls, Cassel, & Kaplan, 1972., Sosa, Kennell, Klaus, Robertson, & Urrutia, 1980). For instance, Revicki and May (1985) in an early study investigated the effects of occupational stress and social support on depression in 210 physicians Their results revealed that social support provided by family moderated relationship between occupational stress and depressive symptoms.. Several researches reported that higher quality of life and satisfaction with social support have been linked to positive physiological outcomes in breast cancer women (Spiegel, & Sephton, 2001; Turner, *et al.,* 2000). For example, Turner, *et al.,* (2000) in metastatic breast cancer women found that social support lowered the mean Salivary Cortisol (stress related Harmon) concentration and Levy, *et al.,* (1990) in metastatic breast cancer women found that social support increased the Natural killer Cell Activity (NKCA). Association between social support and higher Granulocyte (small grain cell) counts has also been reported by researches (Lekander, Furst, Rotestein, Blomgren, & Fredrikson, 1996).

As an external source social support refers to the way in which the social relationships play a major role in protecting an individual from the deleterious effects of the stress (Wortman, 1984). Numerous researches are in live with this direction. For example, Spiegel, Bloom, Kraemer and Gotteil (1989) found significant increase in survival rate for women with metastatic breast cancer after participation in social support groups. The results of the present are consistent with the study by Morrison, *et al.,* (1991) on the effects of social relationship on survival of women with breast cancer in which they examined a cohort of 133 women soon after diagnosis and during treatment with two clinical factors: pathological nodal status and stage of disease as predictor of survival and found significant effect of number of supportive friends, extent of contact with friends and work outside on the survival of women. In our study breast cancer women who perceived higher satisfaction with social support experienced low level of stress than those who perceived low level of social support. The work by Chamberlain, *et al.,* (2006) on interpersonal adjustment of breast cancer women after receiving educational, material and telephone support from oncology nurses for one year also revealed significant improvement in attitude and relationship of these women with their spouses compared to the control group received only educational support.

The results of the present study with reference to number of significant others available (friends, colleagues, family members, & relatives etc) and total number of family members (regards to second & third hypotheses) in women support system are consistent with the Koopman, Hermanson, Diamond, Angell, and Spiegel's (1998) research on emotional adjustment to advance breast cancer, pain, social support and life stress in women with metastatic and recurrent breast cancer. These researchers measured three types of emotional support: number of persons in support system, positive support and aversive social contact. Findings demonstrated significant interaction between stress and social support and between aversive social contact and mood disturbance. Higher number of people in patients' support system was associated with less mood disturbance and more aversive contact was associated with total mood disturbance. In preset study women who reported higher number of significant others (SSQ-N score) and higher number of family members available (SSQ family score) experienced low levels of stress than those obtained low SSQ-N score and SSQ family score. These results are consistent with previous research findings (Bloom, 1982; Morrison, *et al.,* 1991). Fagundes, *et al*., (2012) in a study examined effect of high socio-economic status and supportive personal relationships on expression of Epstein-Barr virus (a latent virus) following an abnormal mammogram in newly diagnosed women with breast cancer. The blood sample of these women was tested after completing the social support questionnaire. Their result demonstrated that highly educated women having more support from friends had lower Epstein-Barr virus (EBV) antibody titers which reflected a stronger cellular immune response to the latent virus.

Some earlier research has demonstrated similar findings in other patients. For example, DeAraujo, Dudley and VanArsdel (1972) reported that asthmatic patients having higher social support available from family members required lower levels of medication to produce clinical improvement than those with poor social support. Similar results were reported by other research (DeAraujo, VanArsdel, Holmes, & Dudley, (1973). There is also evidence that medical and surgical patients benefit from attention and friendly expressions of the physicians and nurses (Auerbach, & Kilmann, 1977). Nuckolls, Cassel and Kaplan (1972) in a study of lower middle class pregnant women of an overseas military community found that women having higher life changes and low social support available from family members had more birth complications. Evidence of the presence of supportive person available reduced length of labor has also been reported (Robertson, & Urutia, 1980).

The available empirical evidence strongly supports the results of the present study and the research hypotheses concerning the effect of perceived satisfaction with the social support on the stress levels of newly diagnosed breast cancer women. The most salient feature of the findings of current study is that the Cohen and Wills (1985) stress buffering model of social support as applied to the newly diagnosed breast cancer women of present study was clearly supported. An important reason for the support of this model as applied to our present sample, is the patriarchal culture of Khyber pakhtunkhwa (KPK) where people still like and are stuck with their traditions. Although living in extended families some time create problems such as lack of privacy, and lack of opportunity in decision making (which is considered as the right of elders particularly men) but compare to cost its benefits are more. In joint

family system which is prevalent in most of the regions of Pakistan and particularly in KPK people (grandparents, uncles, aunts, sisters in law etc) live in a huge house having separate rooms. The elder man at home is the adviser, decision maker, and at the same time, he has to take upon a lot of responsibilities including the economic needs of the whole family, the elder woman feels herself responsible for the emotional mainstay of the entire family. Thus, living in such extended family, provided equal rights are given to all, often relieve tension and solve problems faced by the members. In present study breast cancer women from the joint family system perceived higher satisfaction with the social support and thus, experienced low level of stress as compared to those from the nuclear families. These findings raised the wide range applicability of the Cohen and Wills model to patients of certain other life threatening diseases such as serious cardiovascular and immune disorders.

Implications

The present study has practical implications in offering an insight into the potential relevance of social support in alleviating the harmful influences of stress the breast cancer women experience. These findings raise the importance of psychological interventional therapies (social support) in breast cancer women and in other fields of oncology.

Limitations

The sample of the present study was homogenous in that all women were married, belonged to middle socio economic class, having at least higher school level education, were unemployed and had diagnosed with early stage of breast cancer. The findings need to be replicated in more diverse sample.

Suggestions

Further research needs to focus on the impact of other psychological variables such as past history of psychiatric disorders, number of stressful life events before diagnosis, demographic factors (e.g. older age, personality characteristics such as optimism and pessimism, cognitive processes such as patients thoughts concerning their control over the disease, coping methods on the stress level and adaptation to breast cancer.

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