

Psychological Distress and Adversarial Growth among Cancer Patients

Vijay Viegas¹ and Joslyn Henriques²

¹Abbe Faria Post Graduate Department of Psychology, St. Xavier's College, Mapusa – Goa, India.

²Department of Psychology, Dhempe College of Arts and Science, Miramar-Goa, India.

*Corresponding Author E-mail : vijaygoa24@gmail.com

<https://dx.doi.org/10.13005/bpj/2002>

(Received: 22 February 2020; accepted: 22 July 2020)

The diagnosis of cancer and its treatment is a traumatizing occurrence that creates psychological distress in almost all cancer patients. The psychological distress that these patients experience could reduce their responsiveness to the treatment they are undergoing and could lead to protracted hospitalization. In order to provide the best possible care and interventions to patients battling cancer, it is paramount to identify the patients who over the course of the disease are most likely to experience psychological distress. Thus, the present study was intended to examine the relationship between psychological distress and adversarial growth among cancer patients and to understand whether sex influences the variables under study. **Methods:** A prospective cohort of patients with cancer (n=?230) were recruited from public hospitals in Goa. A convenient sampling technique was employed. The tools used for data collection were the brief symptom inventory by Derogatis (1975) and the silver lining questionnaire by Sodergren and Hyland (2000). Descriptive statistics, Karl Pearson's product-moment correlation, and t-test were used to analyze the data. **Results:** Results indicated a significant negative correlation between psychological distress and adversarial growth among cancer patients ($r = -0.62, P < 0.01$). Significant differences were found in psychological distress ($t = 1.48, P < 0.01$) and in adversarial growth ($t = 0.11, P < 0.05$) among cancer patients as a function of sex. **Conclusion:** An Inverse Relationship Exists Between psychological distress and adversarial growth. Female cancer patients showed higher psychological distress while males showed higher adversarial growth. These findings thus have significant implications for the adherence of these patients to the treatment that they are undergoing and to the outcomes of the treatment. It is, therefore, reasonable to incorporate screenings and psychosocial care as a part of the routine for cancer patients who are under going treatment.

Keywords: Adversarial Growth; Cancer Patients; Psychological Distress.

Cancer according to the World Health Organization (WHO),¹ is a public health problem that is one of the chief causes of death worldwide. By the end of 2020, the WHO estimates that across the globe, the incidence of cancer will surge to more than 15 million with the number of deaths with the fatal disease snowballing to 12 million.

Any individual can experience a disruption in their life due to the uncertainty and

the anxiety associated with a cancer diagnosis. The person's sense of security and order in life could be threatened by a cancer diagnosis. Worldwide, people hold fears that are deeply rooted, that having cancer would mean experiencing tremendous pain and suffering and eventually death, even though in recent times, with advancements in science, treatments for most cancers have been developed. According to Holland,² "no disease has sustained

as strong of a negative stigma as cancer". Hence, this negative stigma that people have, can generate fears which can affect how a person responds to a cancer diagnosis. Research evidence suggests that as people battle with the likelihood of an unpredictable disease trajectory, they experience an unending ambiguity about what is to come, no matter what the type of cancer is.³

Numerous research studies suggest that about 30% of patients can experience psychological distress or other mental health conditions that are significant, on being diagnosed with cancer⁴⁻⁷. Research has also found that hopelessness, anxiety, fear, and depression besides the feeling of pain, are associated with the reception of a cancer diagnosis.⁸ The consequences of the illness too could lead to psychological distress among the patients⁹. According to some more research reports, among cancer patients, the common psychiatric disorders that follow the use of adjuvant therapy include anxiety, fatigue, adjustment disorder, and depression.^{6, 10-11} The psychological distress that is ubiquitous in patients with cancer, is linked to lesser chances of survival of these patients.¹²⁻¹⁴ This psychological distress is likely to occur at any time during the disease trajectory and has the possibility of worsening with time.^{13, 15} The psychological distress experienced has been found to affect the patient's quality of life.¹⁶⁻¹⁷ Evidence also indicates that the patients are likely to have poor social functioning, poor emotional wellbeing, and poor general health.¹⁸

As indicated by the numerous research studies cited above, psychological distress among cancer patients is inevitable, the diagnosis of a terminal illness can wreak havoc in anyone's life. The patient could be stunned, shocked and could be immersed by strong emotions. However, with time, many patients could begin finding meaning during their time of illness. Research has indicated that these benefits could include improved interpersonal relationships, a greater appreciation of life, a change in priorities, and greater spirituality.¹⁹ The positive benefits also include a re-evaluation of former goals, an alteration of priorities, personal growth, and the unearthing of skills and new pursuits.²⁰⁻²⁵ This phenomenon has been referred to by psychologists as adversarial growth or posttraumatic growth. Tedeschi *et al.* define adversarial growth as "positive

psychological changes experienced as a result of the struggle with traumatic or highly challenging life circumstances".^{7,4} There is increasing evidence available over the last few decades, which suggests that life-threatening illnesses can not only lead to an increase in psychological distress but it could also lead to positive life changes.²⁶⁻²⁸ Exhibiting hope and optimism during illness are linked to positive health and thus, lower rates of depression, anger, and better adjustment to negative outcomes and eventually, longer survival rates than patients who are pessimists.¹⁹ Therefore, during the trajectory of the illness, even with high levels of psychological distress, patients could simultaneously experience positive feelings²⁹⁻³¹ which suggests that both negative and positive feelings may be viewed as a two-dimensional construct and not as two extremes on a continuum.³²⁻³⁶

Based on the knowledge of the authors and a thorough literature review, there is a scarcity of research carried out on the psychological distress and adversarial growth among cancer patients. There is also a paucity of studies on sex differences in psychological distress and adversarial growth among cancer patients. Research studies in the Indian context are a bare minimum. Thus, the primary objective of the present study was to examine the relationship between psychological distress and adversarial growth among cancer patients and to examine significant differences in psychological distress and adversarial growth among cancer patients in relation to sex. A better understanding of the mental health of cancer patients can help create awareness and could help in developing interventions that could develop adversarial growth.

MATERIALS AND METHODS

Objectives of the Study

To examine the relationship between psychological distress and adversarial growth among cancer patients.

To examine significant differences in psychological distress and adversarial growth among cancer patients with regard to sex.

Hypotheses of the Study

Ha1

There exists a significant and negative correlation between psychological distress and

adversarial growth among cancer patients.

Ha2

Significant differences exist in psychological distress among cancer patients as a function of sex.

Ha3

Significant differences exist in adversarial growth among cancer patients as a function of sex.

Sample

A prospective cohort of patients with cancer (n=?230) was recruited from public hospitals in Goa. A convenient sampling method was employed and based on the availability of the sample group, male and female participants between the age range of 30-55 years were included in the current research. The patients diagnosed previously with any psychiatric condition were excluded from the study.

Tools Used for Data Collection

Personal Data Sheet

Included socio-demographic information about the sample.

Brief Symptom Inventory

The brief symptom inventory by Derogatis *et al.* (1975) measures psychological distress experienced by an individual. The inventory comprises of 53 items which are ranked on a five-point scale that ranges from 0 (not at all) to 4 (extremely). The items on the inventory cover nine symptom dimensions which include: somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The scale also consists of three global indices that measure the current or past level of symptomatology (global severity index), the intensity of symptoms (positive symptom distress index), and the number of reported symptoms (positive symptom total). For the purpose of this study, only the global severity index was considered.

Silver Lining Questionnaire

The silver lining questionnaire by Sodergren and Hyland (2000) measures adversarial growth based on three factors: changes in life philosophy, changes within the self, and enhanced relationships. The questionnaire consists of 38 items which are rated on a five-point scale ranging from strongly agree to strongly disagree. For the purpose of this study, the total score on the scale was considered.

Procedure

The respondents were contacted personally, the purpose of the visit was made known to them, and their consent was sought for participation. Written informed consent to participate and view their medical records, was obtained from the patients who agreed to participate in the study. No identifying information was included in the questionnaires, in order to ensure anonymity. The medical records of the participants were viewed in order to confirm the validity of the diagnosis, date of diagnosis, treatment method, and the stage of the disease. The data for the study was collected from 130 cancer patients (62 Males, 68 Females) admitted in public hospitals in Goa. The tools used for data collection included the brief symptom inventory by Derogatis *et al.* (1975) which was used to measure the level of psychological distress in the cancer patients; and the silver lining questionnaire by Sodergren and Hyland (2000) which was used to measure adversarial growth in the sample group. Upon completion of the questionnaires, the participants were debriefed about the study and thanked for their participation. The questionnaires were then scored and subjected to statistical analysis.

Tools used for Statistical Analysis

On completion of the data collection, the collected data was scrutinized, scored, and coded. Descriptive statistics, Karl Pearson's Product Moment Correlation, and t-test were used to analyze the data.

RESULTS AND DISCUSSION

Relationship between Psychological Distress and Adversarial Growth among Cancer Patients

The relationship between psychological distress and adversarial growth among cancer patients was examined using Karl Pearson's product-moment correlation. As indicated in table 1, the correlation coefficient was found to be -0.62 showing a moderate negative correlation which is highly significant ($P < 0.01$). This indicates that the higher the psychological distress, the lower will be the adversarial growth and vice versa.

Receiving a cancer diagnosis can cause a complete disruption in the life of almost any person creating a threat to their sense of security and order in life. Besides experiencing pain associated

with the illness, the patients could experience hopelessness, fear, anxiety, and depression. As per the findings of Singer *et al.*⁴, Mitchell *et al.*,⁶ and Vehling *et al.*,⁷ about 30% of patients can suffer from psychological distress when diagnosed with cancer. This is probably because there is a lot of negative stigmas attached to cancer – that cancer represents pain, suffering, and eventually death. People hold on to these deeply rooted fears even though with advancements in the medical field, most cancers are now treatable. No matter what the type of cancer is, people keep experiencing uncertainty about what is to come and deal with the likelihood of an unpredictable course. The psychological distress that these patients experience could eventually make the person feel hopeless and thus the person may not be able to see anything positive. To worsen things, higher levels of psychological distress could hinder a patients’ prognosis thus making him/her susceptible to more pain and thus elevating the levels of distress.

Psychological distress could be probably very high when the person just receives the diagnosis. However, with time, and with appropriate social support, the person may begin to see the illness more positively. Their interpersonal relationships may improve and they may begin to have a greater appreciation for life. They may also unearth new skills and pursuits. All these positive changes could decrease the level of psychological distress.

The above finding is supported by research conducted by Stiegelis *et al.*³⁷ who in their study discovered that the higher the psychological distress, the lower was the positivistic outlook. This finding is also supported by a study by Ackroyd *et al.*³⁸ who found that psychological distress is reduced if the positivistic outlook is enhanced in cancer patients. This would automatically reduce the psychological distress experienced by the patient and thereby also help in the treatment.

Table 1. Correlation between psychological distress and adversarial growth among cancer patients

Measure	Mean	Standard Deviation	Correlation Coefficient
Psychological Distress	106.80	55.12	-0.62**
Adversarial Growth	125.20	40.05	

**Significant at 0.01 level

Table 2. Mean, standard deviation, and t-value for psychological distress among cancer patients as a function of sex

	Sex	Mean	Standard Deviation	t-value
Psychological Distress	Male	93.13	58.70	1.48**
	Female	122.43	48.50	

**Significant at 0.01 level

Table 3. Mean, standard deviation, and t-value for adversarial growth among cancer patients as a function of sex

	Sex	Mean	Standard Deviation	t-value
Adversarial Growth	Male	126.07	33.88	0.11
	Female	124.44	45.88	

*Significant at 0.05 level

Differences in Psychological Distress among Cancer Patients with Regard to Sex

An observation of table 2 which indicates the mean, standard deviation scores and t-value for psychological distress as a function of sex, reveals that the mean scores for male and female cancer patients were 93.13 and 122.43 respectively with corresponding standard deviations of 58.70 and 48.50. The t-value was computed to be 1.48 which was found to be highly significant ($P < 0.01$), thus indicating that significant differences exist in psychological distress among cancer patients with regard to sex. Comparing the mean scores, it is observed that female cancer patients have higher psychological distress as compared to male cancer patients.

A possible reason for this finding could be that receiving a cancer diagnosis could cause a psychological blow that can lead to cognitive and emotional crises and obstinate distress among the patients.³⁹⁻⁴¹ With regard to women, the blow may be worse for several reasons. First of all, cancer can be more troublesome for the roles that women play than the ones that men play. Women are usually portrayed by traditional ideas of femininity as caring, nurturing, and compassionate.⁴² Rather than prioritizing their own needs and accomplishments, women are socialized to prioritize the needs of their families and to nurture and care for others. Research evidence also indicates that women are more responsive to others' needs (emotional and physical) and indulge in care work more often than men.⁴³⁻⁴⁴ Therefore, even when women suffer from chronic illnesses, they are more likely than their male counterparts to be confronted with the continuing demands of the household and thus, to neglect their own health because of their family responsibilities.⁴⁵ While on the other hand, when males suffer from chronic illnesses, they are usually cared for and nurtured by their wives and other family members.⁴⁶⁻⁴⁷ When women juggle multiple roles and simultaneously deal with their illness and the physical symptoms of the illness, their resources are likely to get exhausted thus leading to problems in adjustment and distress.⁴⁸ In order to recover from the illness, a woman would require to put themselves first and prioritize their needs, but, the breaking gender norms of putting the needs of others first could create stress and could lead to an identity crisis among these women. Moreover, a

women's distress could increase with the guilt of putting a burden on others because of their illness.⁴⁹ Since women accept more family obligations and providing of care and cast a more extensive net of worries than men do,⁴⁷ this passionate expense of caring may build women's defencelessness to stressors thereby making them more prone to psychological distress as compared to men.⁴⁴

As per the National Cancer Institute,⁵⁰ "despite the fact that men face a more prominent lifetime risk of cancer, women are more likely to be diagnosed with cancer earlier in life". Receiving a cancer diagnosis at a more youthful age, particularly before the age of 45, is related to more significant levels of misery contrasted with more established ages.⁵¹⁻⁵² A conclusion of malignant growth might be a significant stun for more youthful individuals, while more seasoned individuals are probably going to envision the beginning of constant disease with cutting edge age.⁵³ More youthful female patients go up against the chance of imperilled regenerative capacity and early menopause, which may affect their self-concept.⁵⁴ Women who are younger when diagnosed with cancer may feel disconnected from their friends and may encounter neglected childcare needs and monetary glitches due to their sickness.^{53, 55}

Further, as concluded by Yoshiuchi *et al.*,⁵⁶ "changes in appearance cause serious distress for cancer patients, which is manifested as five D's: Death; Dependence on family or medical staff; Disfigurement; Disruption of life, purpose or desire; and Disability". With regard to women, cosmetic issues can undoubtedly influence their mental state and personal satisfaction. Past investigations demonstrated that women with breast cancer experience the ill effects of mental misery because of unfriendly impacts and long-lasting physical deformation.⁵⁷ Irreversible changes as well as transitory changes in appearance, for example, chemotherapy-instigated alopecia, additionally affect the mental health of these patients.⁵⁸⁻⁵⁹ Additionally, these changes in appearance may identify with sexuality issues.⁶⁰

This finding is bolstered by Hagedoorn *et al.*⁶¹ and Sterba *et al.*⁶² whose reviews uncovered that female cancer patients as well as female partners of male cancer patients had mental trouble and low personal satisfaction. Research by Bultz

and Carlson⁶³ and Stommel *et al.*⁶⁴ likewise reveal that among patients with cancer, women report more significant levels of psychological distress as compared to men.

Differences in Adversarial Growth among Cancer Patients as a Function of Sex

The mean, standard deviation scores, and t-value for adversarial growth as a function of sex can be seen in table 3. As depicted in the table, the mean scores for male and female cancer patients were found to be 126.07 (SD 38.88) and 124.44 (45.88) respectively. The t-value was computed to be 0.11 ($P < 0.05$). Hence, comparing the mean scores, it is observed that males have a higher adversarial growth as compared to females.

Cancer is normally seen as a perilous and conceivably horrendous ailment, recognitions exacerbated by its surprising beginning and wild nature.⁶⁵ Besides, cancer patients need to cope with the changes caused due to the ailment to which they need to adjust during their treatment direction.⁶⁶

Regardless of generous trouble that is related to the diagnosis of cancer and its treatment, numerous patients show unprecedented versatility.⁶⁷⁻⁶⁸ Studies have indicated that weakening malignant growth and its treatment can be a possibility for self-awareness, just as for upgraded mental and enthusiastic prosperity that might be related to better adapting to the demands related to the illness.⁶⁹⁻⁷¹ In any case, not every person responds to afflictions similarly, with some stronger than others.⁷²

As found in the current study, males have better adversarial growth than women. A potential explanation behind the above finding could be that women usually shuffle a larger number of jobs than men, and when women should at the same time manage their ceaseless ailment, their assets may get depleted, prompting change issues and pain.⁴⁸ Breaking gender norms could lead women to engage in negative ruminative contemplations that they are unequipped for doing what society or their family expects of them. In addition, the pain that women experience might be exacerbated by the guilt of troubling others with their disease.⁴⁹ Research indicates that women have more ruminative thoughts as compared to men and these negative ruminative thoughts have been associated with higher levels of depression in women.⁷³ Therefore, brooding on negative thoughts regarding

their ailment and their incapability to function like they used to before the illness, may affect the adversarial growth of women. On the other hand, when males experience any chronic illness, they tend to rely on their independence.

The current study aimed at investigating the relationship between psychological distress and adversarial growth among patients with cancer and examining significant differences in psychological distress and adversarial growth among cancer patients with regard to sex. Our study found a significant and negative correlation between psychological distress and adversarial growth among cancer patients, thus indicating that higher levels of psychological distress would lead to lower adversarial growth and vice versa. Significant differences were found in psychological distress among cancer patients with regard to sex with female cancer patients scoring higher on psychological distress than males. Significant differences were also found in adversarial growth among cancer patients with regard to sex with males obtaining a higher score on adversarial growth than females. A better understanding of the psychological distress experienced by cancer patients can help in raising awareness and could also help in developing interventions that could develop adversarial growth. Further, understanding the components that separate cancer patients and cancer survivors who experience adversarial growth from those who do not, might have critical clinical ramifications and could help guide interventions to help cancer patients and cancer survivors with their recuperation from cancer.

The results of the current study highlight primary data on the incidence of psychological distress and adversarial growth among patients with cancer in the state of Goa. Finding a way to diminish the psychological distress not just improves the quality of life among patients with cancer but also helps them to adhere to the treatment. Routine screening should be attempted and psychosocial support services ought to be accessible for these patients. Future research could incorporate the level of psychological distress before and after treatment and differences in psychological distress among patients with different types of cancer. Further research could likewise be attempted to examine the viability of psychosocial support and endeavors to improve techniques to reduce psychological

distress and increase adversarial growth among these patients.

ACKNOWLEDGMENT

We are thankful to the doctors at the hospitals that we visited for granting us permission for conducting our research on their patients. We are exceptionally grateful to all the participants who shared their precious time and contributed to our study.

REFERENCES

1. Cancer [Internet]. Who.int. 2020 [cited 22 February 2020]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cancer>
2. Holland J. History of Psycho-Oncology: Overcoming Attitudinal and Conceptual Barriers. *Psychosomatic Medicine.*; **64**(2):206-221 (2002).
3. Dankert A., Duran G., Engst-Hastreiter U., Keller M., Waadt S., Henrich G., *et al.*. Fear of progression in patients with cancer, diabetes mellitus, and chronic arthritis. *Rehabilitation*, **42**: 155–163 (2003).
4. Singer S., Das-Munshi J. and Brähler E. Prevalence of mental health conditions in cancer patients in acute care—a meta-analysis. *Oncol.*, **21**: 925–930 (2010). 10.1093/annonc/mdp515
5. Singer S., Ehrensperger C., Briest S., Brown A., Dietz A., Einkenkel J., *et al.* Comorbid mental health conditions in cancer patients at working age—prevalence, risk profiles, and care uptake. *Psychooncology*, **22**: 2291–2297 (2013). 10.1002/pon.3282
6. Mitchell A. J., Chan M., Bhatti H., Halton M., Grassi L., and Johansen C. Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative care settings: a meta-analysis of 94 interview-based studies. *Lancet Oncol.* **12**: 160–174 (2011). doi:10.1016/S1470-2045(11)70150-4
7. Vehling S., Koch U., Ladehoff N., Schön G., Wegscheider K., Heckl U., *et al.* Prävalenz affektiver und angststörungen bei krebs: systematischer literature review und metaanalyse. *Psychosom. Med. Psychol.* **62**: 249–258 (2012). 10.1055/s-0032-1309032
8. Breen S.J, Baravelli C.M, Schofield P.E, Jefford M., Yates P.M, and Aranda S.K. Is symptom burden a predictor of anxiety and depression in patients with cancer about to commence chemotherapy? *Med J Aust.*; **190**: 99–104 (2009).
9. Fann J.R, Thomas-Rich A.M, Katon W.J, *et al.* Major depression after breast cancer: a review of epidemiology and treatment. *Gen Hosp Psychiatry.*; **30**: 112–126 (2008). doi:10.1016/j.genhosppsy.2007.10.008
10. Iwamitsu Y. Anxiety, emotional suppression, and psychological distress before and after breast cancer diagnosis. *Psychosomatics.*; **46**: 19–24 (2005). doi:10.1176/appi.psy.46.1.19
11. Janaki M.G, Kadam A.R, Mukesh S., Nirmala S., Arul Ponni R.B.S, and Rajeev A.G. Magnitude of fatigue in cancer patients receiving radiotherapy and its short term effect on quality of life. *J Cancer Res Ther.*; **6**:1 (2010). doi:10.4103/0973-1482.63566
12. Hamer M., Chida Y., and Molloy G.J. Psychological distress and cancer mortality. *J Psychosom Res.*; **66**(3): 255–258 (2009). doi:10.1016/j.jpsychores.2008.11.002.
13. Chida Y., Hamer M., Wardle J., and Steptoe A. Do stress-related psychosocial factors contribute to cancer incidence and survival? A systematic quantitative review of 40 years of inquiry. *Nat Clin Pract Oncol.*; **5**: 466–475 (2008). doi:10.1038/
14. Lavelle C., Ismail M.F, Doherty K., Bowler A., Mohammad M.M, and Cassidy E.M. Association between psychological distress and cancer type in patients referred to a psycho-oncology service. *Ir Med J.*; **110**(6): 579 (2017).
15. Murray S.A, Kendall M., Grant E., Boyd K., Barclay S., and Sheikh A. Patterns of social, psychological, and spiritual decline toward the end of life in lung cancer and heart failure. *J Pain Symptom Manage.*; **34**(4): 393–402 (2007). doi:10.1016/j.jpainsymman.2006.12.009
16. Guo Z., Tang H., Li H., *et al.* The benefits of psychosocial interventions for cancer patients undergoing radiotherapy. *Health Qual Life Outcomes.* **11**:121 (2013). doi:10.1186/1477-7525-11-83
17. Fallowfield L., Ratcliffe D., Jenkins V. and Saul J. Psychiatric morbidity and its recognition by doctors in patients with cancer. *Br J Cancer.*; **84**:1011–1015 (2001). doi:10.1054/bjoc.2001.1724
18. Ahmed A.E, Almuzaini A.S, Alsadhan M.A, *et al.* Health-related predictors of quality of life in cancer patients in Saudi Arabia. *J Canc Educ.*; **33**: 1011 (2018). doi:10.1007/s13187-017-1198-3
19. Zanni G. R. Optimism and health. *Consult Pharm.*; **23**:112-6, 119, 121,124,126 (2008).
20. Manne S, Ostroff J, Winkel G, Goldstein L, Fox K, Grana G. Posttraumatic growth after breast cancer: patient, partner, and couple

- perspectives. *Psychosom Med.*; **66**(3):442-54 (2004). 10.1097/01.psy.0000127689.38525.7d
21. Thornton AA, Perez MA. Posttraumatic growth in prostate cancer survivors and their partners. *Psychooncology*; **15**(4):285-96 (2006).
 22. Weiss T. Correlates of posttraumatic growth in husbands of breast cancer survivors. *Psychooncology*; **13**(4): 260-8 (2004).
 23. Andrykowski M. A, Curran S. L, Studts J. L, Cunningham L., Carpenter J. S, McGrath P. C, Sloan D. A, and Kenady D. E. Psychosocial adjustment and quality of life in women with breast cancer and benign breast problems: a controlled comparison. *Journal of Clinical Epidemiology*; **49**: 827-834 (1996).
 24. Fromm K., Andrykowski M. A and Hunt J. Positive and negative psychosocial sequelae of bone marrow transplantation: implications for quality of life assessment. *Journal of Behavioral Medicine*; **19**: 221-240 (1996).
 25. O'Connor A. P, Wicker C.A and Germino B. B. Understanding the cancer patient's search for meaning. *Cancer Nursing*; **13**: 167-175 (1990).
 26. Sodergren S. and Hyland M. What are the positive consequences of illness? *Psychology and Health*; **15**: 85-97 (2000).
 27. Thibodeau J. and MacRae J.. Breast cancer survival: a phenomenological inquiry. *Advances in Nursing Science*; **19**: 65-74 (1997).
 28. Andrykowski M. A, Brady M. J and Hunt J. W. Positive psychosocial adjustment in potential bone marrow transplant recipients: cancer as a psychosocial transition. *Psycho-Oncology*; **2**: 261-276 (1993).
 29. Ferrans C. E. Quality of life through the eyes of survivors of breast cancer. *Oncology Nursing Forum*; **21**: 1645-1651 (1994).
 30. Ferrell B. R, Grant M. M, Funk B. M, Otis G. S and Garcia N. J. Quality of life in breast cancer survivors: implications for developing support services. *Oncology Nursing Forum*; **25**: 887-895 (1998).
 31. Folkman S. Positive psychological states and coping with severe stress. *Social Science and Medicine*; **45**: 1207-1221 (1997).
 32. Folkman S. and Moskowitz J. T. Positive affect and the other side of coping. *American Psychologist*; **55**: 647-654 (2000).
 33. Helgeson V. S and Cohen S. Social support and adjustment to cancer: reconciling descriptive, correlational, and intervention research. *Health Psychology*; **15**: 135-148 (1996).
 34. McGrath J. E and Beehr T. A. Time and the stress process: some temporal issues in the conceptualization and measurement of stress. *Stress Medicine*; **6**: 93-104 (1990).
 35. Schroevers M. J, Sanderman R., van Sonderen E. and Ranchor A. V. The evaluation of the Center for Epidemiologic Studies Depression (CES-D) scale: Depressed and Positive Affect in cancer patients and healthy reference subjects. *Quality of Life Research*; **9**: 1015-1029 (2000).
 36. Stiegelis H. E., Hagedoorn M., Sanderman R., Zee K. I. v. d., Buunk B. P. and Bergh, A. C. M. Cognitive adaptation: a comparison of cancer patients and healthy references. *British Journal of Health Psychology*; **8**: 303-318 (2003).
 37. Ackroyd R., Shorthouse A. J. and Stephenson T. J. Gastric carcinoma in siblings with Friedreich's ataxia. *J. Surg. Oncol.*; **22**: 301-303 (2011).
 38. Akechi T, Okuyama T, Imoto S, Yamawaki S and Uchitomi Y. Biomedical and psychosocial determinants of psychiatric morbidity among postoperative ambulatory breast cancer patients. *Breast Cancer Res Treat.*; **65**(3):195-202 (2001).
 39. Baum A. and Posluszny D. M. Traumatic stress as a target for intervention with cancer patients. In A. Baum & B. L. Andersen (Eds.), *Psychosocial interventions for cancer*; 143-173 (2001).
 40. Manne S. L, Glassman M. and DuHamel K. Intrusion, avoidance and psychological distress among individuals with cancer. *Psychosomatic Medicine*; **63**: 658-667 (2000).
 41. Bottorff J.L, Oliffe J.L, Halpin M., Phillips M., McLean G. and Mroz L. Women and prostate cancer support groups: the gender connect? *Soc Sci Med.*; **66**(5):1217-27 (2008).
 42. England P. Emerging Theories of Carework. *Annual Review of Sociology*; **31**: 381-399 (2005).
 43. Kessler R and McLeod J. D. Sex Differences in Vulnerability to Undesirable Life Events. *American Sociological Review*; **49**: 620-631 (1984).
 44. Boogaard MA. Rehabilitation of the female patient after myocardial infarction. *Nurs Clin North Am.*; **19**(3): 433-40 (1984).
 45. King KM. Gender and short-term recovery from cardiac surgery. *Nurs Res.*; **49**(1):29-36 (2000).
 46. Stanton AL, Revenson TA, Tennen H. Health psychology: psychological adjustment to chronic disease. *Annu Rev Psychol.*; **58**: 565-92 (2007).
 47. Northouse LL, Mood D, Templin T, Mellon S, George T. Couples' patterns of adjustment to colon cancer. *Soc Sci Med.*; **50**(2): 271-84 (2000).
 48. Sulik Gayle A. On the Receiving End: Women, Caring, and Breast Cancer. *Qualitative Sociology*; **30**: 297-314 (2007).
 49. National Cancer Institute. SEER Cancer Statistics Review 1975 - 2005. Bethesda, MD: 2008.
 50. Kroenke CH, Rosner B, Chen WY, Kawachi I,

- Colditz GA and Holmes MD. Functional impact of breast cancer by age at diagnosis. *J Clin Oncol.*; **22**(10):1849-56 (2004).
51. Schnittker J. Chronic illness and depressive symptoms in late life. *Soc Sci Med.*; **60**(1):13-23 (2005).
 52. Mosher C.E and Danoff-Burg S. A review of age differences in psychological adjustment to breast cancer. *J Psychosoc Oncol.*; **23**(2-3):101-14 (2005).
 53. Avis N.E, Crawford S. and Manuel J. Psychosocial problems among younger women with breast cancer.; **13**(5): 295-308 (2004).
 54. Mor V, Malin M, and Allen S. Age differences in the psychosocial problems encountered by breast cancer patients. *J Natl Cancer Inst Monogr.*; **16**: 191-7 (1994).
 55. Yoshiuchi K, Kikuchi H. IX Zouketsuki kei shuyou. In: Uchitomi Y, Ogawa A, editors. Seishin Shuyou Gaku. Tokyo: Igaku Shoin; 2011. p. 283.
 56. Pan XF, Fei MD, Zhang KY, Fan ZL, Fu FH and Fan JH. Psychopathological profile of women with breast cancer based on the symptom checklist-90-R. *Asian Pac J Cancer Prev.*; **14**(11):6579-84 (2014).
 57. Ishida K, Ishida J and Kiyoko K. Psychosocial reaction patterns to alopecia in female patients with gynecological cancer undergoing chemotherapy. *Asian Pac J Cancer Prev.*; **16**(3):1225-33 (2015).
 58. Choi EK, Kim IR, Chang O, Kang D, Nam SJ, Lee JE, Lee SK, Im YH, Park YH, Yang JH and Cho J. Impact of chemotherapy-induced alopecia distress on body image, psychosocial well-being, and depression in breast cancer patients.; **23**(10):1103-10 (2014).
 59. Monga U, Tan G, Ostermann HJ and Monga TN. Sexuality in head and neck cancer patients. *Arch Phys Med Rehabil.* 1997; **78**(3):298-304.
 60. Hagedoorn M, Buunk BP, Kuijer RG, Wobbles T and Sanderman R. Couples dealing with cancer: role and gender differences regarding psychological distress and quality of life.; **9**(3):232-42 (2000).
 61. Sterba KR, Swartz RJ, Basen-Engquist K, Black PC, and Pettaway CA. Long-term quality of life after radical prostatectomy in wives of men in the postoperative adjuvant androgen deprivation trial. *Support Care Cancer.*; **19**(8): 1117-24 (2011).
 62. Bultz BD and Carlson LE. Emotional distress: the sixth vital sign—future directions in cancer care.; **15**(2):93-5 (2006).
 63. Stommel M, Kurtz ME, Kurtz JC, Given CW and Given BA. A longitudinal analysis of the course of depressive symptomatology in geriatric patients with cancer of the breast, colon, lung, or prostate. *Health Psychol.*; **23**(6): 564-73 (2004).
 64. Tedeschi RG and Calhoun LG. Trauma and transformation: growing in the aftermath of suffering. (1995). Available from: <http://sk.sagepub.com/books/trauma-and-transformation>.
 65. Molina Y, Yi JC, Martinez-Gutierrez J, Reding KW, Yi-Frazier JP and Rosenberg AR. Resilience among patients across the cancer continuum: diverse perspectives. *Clin J Oncol Nurs.* **18**(1): 93-101 (2014).
 66. Carver CS. Resilience and thriving: issues, models, and linkages. *J Soc Issues.*; **54**(2):245–66 (1998). 10.1111/j.1540-4560.1998.tb01217.x
 67. Gouzman J, Cohen M, Ben-Zur H, Shacham-Shmueli E, Aderka D, Siegelmann-Danieli N and Beny A. Resilience and psychosocial adjustment in digestive system cancer. *J Clin Psychol Med Settings.*; **22**(1):1-13 (2015).
 68. Ruini C, Vescovelli F and Albieri E. Post-traumatic growth in breast cancer survivors: new insights into its relationships with well-being and distress. *J Clin Psychol Med Settings.*; **20**(3):383–91 (2013). 10.1007/s10880-012-9340-1
 69. Danhauer SC, Russell GB, Tedeschi RG, Jesse MT, Vishnevsky T, Daley K, *et al.* A longitudinal investigation of posttraumatic growth in adult patients undergoing treatment for acute leukemia. *J Clin Psychol Med Settings.*; **20**(1):13–24 (2013). 10.1007/s10880-012-9304-5
 70. Lelorain S, Bonnaud-Antignac A and Florin A. Long term posttraumatic growth after breast cancer: prevalence, predictors and relationships with psychological health. *J Clin Psychol Med Settings.*; **17**(1):14–22 (2010). 10.1007/s10880-009-9183-6
 71. Chan CL, Chan TH and Ng SM. The Strength-Focused and Meaning-Oriented Approach to Resilience and Transformation (SMART): a body-mind-spirit approach to trauma management. *Soc Work Health Care.*; **43**(2–3):9–36 (2006). 10.1300/J010v43n02_03
 72. Nolen Hoeksema S., Larson J. and Grayson C. Explaining the gender differences in depressive symptoms. *Journal of Personality and Social Psychology.*; **77**: 1061– 1072 (1999).
 73. Nolen Hoeksema S., Morrow J. and Frederickson B. L. Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology.*; **102**: 20– 28 (1993).
 74. Tedeschi, R. G., Shakespeare-Finch, J., Taku, K., & Calhoun, L. G. *Posttraumatic growth: Theory, research, and applications*. Routledge (2018).