Open Access

Original Article

Health Locus of Control and Perceived Levels of Depression, Anxiety, Stress Among Pakistani Female Breast Cancer Patients

Rubina Naz, Saima Ambreen

Department of Psychology, University of Balochistan, Quetta Pakistan

ABSTRACT

Objective: To explore how psychological strengths of Health Locus of control influence to psychological distresses (depression, anxiety, stress) in breast cancer female patients.

Study Design: Cross sectional study.

Place and Duration of Study: Oncology Department, Shifa International Hospital, Islamabad Pakistan, from Mar 2021 to Feb 2022.

Methodology: A non- probability sampling technique (purposive sampling) was used. A total sample of n = 115 breast cancer patients whose age range was from 28- 89 years. A biographical sheet that contains personal and disease information of patient, along with two indigenously adapted standardized scales were used: Multidimensional Health Locus of Control Form- C (Wallston, Stein, & Smith, 1994), and DASS-21 (Lovibond & Lovibond, 1995). To assess the construct under observation in current study.

Results: Findings suggested that Internal Health Locus of Control (IHLoC) and Doctors HLoC (DHLoC) are significantly and negatively correlated with DASS (Depression, Anxiety, and Stress) $p<0.05$, $p<0.001$ respectively. Conversely, the MHLoC subscale Chance (CHLoC) and Others HLoC are positively correlated with DASS with ($p<0.05$, $p>0.05$ respectively). The statistical regression analysis revealed Internal Health Locus of Control negatively influence to depression anxiety and stress ($R^2= 0.06$, $p<.05$; $F (1, 113) = 6.75$, $p<0.05$), same on doctor HLoC, while all external dimension showed positive significant influences on outcome variable DASS (Depression, Anxiety, Stress).

Conclusion: Strength factor of internal health locus of control enables breast cancer patient to fight against psychological distresses. Psychologists, counselors/ therapists who are serving in oncology department, health care personnel's recommendations are suggested.

Keywords: Health Locus of Control, Psychological distresses.

How to Cite This Article: *Naz R, Ambreen S. Health Locus of Control and Perceived Levels of Depression, Anxiety, Stress Among Pakistani Female Breast Cancer Patients. Pak Armed Forces Med J 2025; 75(Suppl-4): S591-S595. DOI: https://doi.org/10.51253/pafmj.v75iSUPPL-4.11988*

INTRODUCTION

Breast cancer is the leading form of cancer and a major cause of death. Its most common victim is the female gender in all over the world. Female gender is having more risk to be diagnosed as breast cancer patient, as only 0.5-1 percent of breast cancer cases occur in male population.[1] The prevalence of breast cancer is alarming worldwide, as its occurrence among females is challenging. It is estimated that more than 1 million women are diagnosed with breast cancer worldwide annually, with approximately 400,000 women dying as a result of the disease globally.[2]

Findings also indicated approximately 70 percent of deaths occur in under developed countries, due to unawareness and lack of screening facilities.[3] This can be attributed to the diagnosis due to different cultural beliefs, as well as due to the lack of diagnostic methods.[4] It could also be related to the lack of government health care policies, early administrative responsibility and progress in treatment and intervention methods.[5] The prevalence of cancer is highest in Asian countries such as India and Pakistan. Prevalence indicates that Pakistan has the highest prevalence of breast cancer among South Asian countries, with 1 in 9 having a chance of being diagnosed with breast cancer at any stage of life. Approximately 178,388 new cases of the disease were recorded in Pakistan in 2020.[6]

In addition to abnormal physical indicators, breast cancer has burden of psychological distress, resulting from the disease itself or the treatment recommended to it. This may affect emotional status that leads to increased level of anxiety, depression, stress, anger, hopelessness, fear of cancer, fear of separation from close or blood relatives forever, fear of pain, poor body image, and family worries.[7] In the light of existing literature reported figures of psychological distress are in increased ratio among

Correspondence: Dr Rubina Naz, Department of Psychology, University of Balochistan, Quetta Pakistan

Received: 31 Mar 2024; revision received: 05 May 2024; accepted: 06 Jun 2024

breast cancer patients, it is necessary to assess and treat patients with the most suitable means such as active listening, emotional comfort, psychological therapeutic treatment, appropriate medical and surgical treatment to safeguard a better adaptability and coping mechanisms for happy life.[8] Breast cancer patients with an external Health Locus of Control (LoC) believe external factors determine their health outcomes, leading to low coping mechanisms, higher depression, and slower recovery. In contrast, an Internal Health Locus of Control helps patients avoid feelings of helplessness, depression, and anxiety.[9]

Lefcourt and Rotter introduced theory of LoC, describes degree to which an individual perceives that much of what happens in his/her life (including health) is controlled by either internal (his/her own actions) or external factors (powerful others, fate, or coincidence). Indeed, LoC is best thought of as a continuum and each individual falls between these two ends.[10-12] Indeed, it is widely believed that a high external LoC leads to demotivation, increased anxiety and depression, and negatively impacts psychological outcomes and quality of life, while high internal LoC is associated with improved mental health.[13] After examining existing indigenous literature, it became evident that there is information gap or very little research work done on the positive psychological aspects of Health Locus of Control and its relationship with psychological distress among Pakistani female breast cancer patients. Addressing this gap is crucial to raise awareness and facilitate potential solutions. This study aims to explore how Health Locus of Control influences psychological distress in breast cancer female patients.

METHODOLOGY

A cross-sectional study design was followed in current research. Data was collected from Shifa International Hospital Islamabad OPD using non-probability sampling technique (purposive sampling) between the period of March 2021- Feb 2022, and sample size was n=115 breast cancer patients. Data was collected after taking permission from Institutional Review Board and Ethical Committee (IRB# 231-721-2019). During COVID-19 data collection was restricted therefore data collection was properly started in March 2021.

Inclusion Criteria: Was the breast cancer female patients only, with any disease stage (stage I, stage II, stage III, stage IV), follow-up patients and patients with recurrence of disease were included in study.

Exclsuion Criteria: Breast cancer patients with any previous psychiatric history were excluded from research.

A consent form was used to fulfill all required ethical considerations for study. After taking a formal consent, patients who can read and write were instructed to fill the biographical form (contains patient's personal and disease information) then indigenously adapted Urdu versions of both scales; Multi- dimensional Health Locus of Control, Form C7 and DASS-2114, 15, a 21-item scale were supplied. While for those who cannot read and write researcher collected data using a structured questionnaire administration via face-to-face interview form and fill options according to their given responses in a separate allocated room. MHLoC has four sub-scales (Internal Health Locus of control 6 items, Chance Health Locus of Control 6 items, Doctors and Others Health Locus of Control 3,3 items). DASS- 21 has three sub- scales (Depression, Anxiety, Stress, 7 items for each). For both of these scales reported alpha reliability coefficients,[7,14,15] and even the construct validity,[7,13,14,15] were perfectly satisfactory. Alpha reliabilities are measured to check the psychometric properties of any scale, researcher again tested the alpha reliability with current sample and found it perfectly good and satisfactory for this research. Results demonstrated a good internal consistency for MHLoC scales ranges a=0.78 to a=0.61, and for DASS-21 a=0.91 to a= 0.65 for each sub scale sequentially. Data was normally distribution, values for skewness and kurtosis were <+.1.16 A descriptive statistic was calculated to describe data, Bivariate Pearson Correlation analysis was used to find correlation between variables, and finally to checkout influences of independent variable on outcome variable the multiple hierarchical regression analysis was computed. The level of significance was <0.05.

RESULTS

The study included a total of 115 participants with diverse demographic characteristics. In terms of age, the majority were either middle-aged (45%) or young (42%), while a smaller proportion (13%) were classified as older adults.Regarding educational status, nearly half of the participants (49%) had education up to the metric level, 30% had education above the metric level, and 21% were illiterate, indicating a mixed level of educational attainment with a tendency toward basic education. Most participants (62%) resided in urban areas, whereas 38% were from rural

settings, reflecting an urban-majority sample. With respect to the family system, 59% of respondents lived in nuclear families, while 41% belonged to joint families, indicating a shift toward smaller household structures. In terms of marital status, the majority of participants (66%) reported that their husbands were alive, while 27% were widows and 7% were either divorced or separated (Table-I)

Table-I: Demographic Characteristics of Study Participants (n=115)

Parameters	Frequency (%)
Age in Years	
Young age	48(42%)
Middle age	52(45%)
Old age	15(13%)
Education	
Illiterate	24(21%)
up to metric	56(49%)
Above metric	35(30%
Residency status	
urban	71(62.0%)
rural	44(38.0%)
Family System	
Single	68(59%)
Joint	47(41%)
Marital Status	
Husband alive	76(66%)
Widow	31(27%)
Divorced/Separate	8(7%)

Table-II: Inter- Correlation Coefficient for Main Variables of Study

Variables	Depression	Anxiety	Stress	DASS
IHLoC	-0.091	-0.331***	-0.202*	-0.237*
DHLoC	-0.637***	-0.462***	-0.387***	-0.564***
CHLoC	0.189*	0.262**	0.134	0.227*
OHLoC	-0.025	0.243	0.215*	0.158

*Note. ***p < 0.001, **p < 0.01, *p <0.05*

The correlational matrix revealed significant relationships between Multi-Dimensional Health Locus of Control (MHLoC) dimensions and psychological distress variables (Depression, Anxiety, Stress; DASS). The correlation findings indicated that Internal Health Locus of Control (IHLoC) was negatively significant with Anxiety (r value=-0.331), Stress (r value=-0.202), and DASS (r value=-0.237) (Depression Anxiety Stress Scales), but not significant with Depression(r value=-0.091). DHLoC (Doctors' Health Locus of Control) showed a highly negative significance with Depression (r value=-0.637), Anxiety (r value=-0.462), Stress(-r value=-0.387), and DASS (r value=--0.564). CHLoC (Chance Health Locus of Control) was positively significant with Depression (r value=-0.189), Anxiety (r value=-0.243), and DASS(r value=-0.158), but not significant with Stress. Lastly, OHLoC (Others' Health Locus of Control) was not significant with Depression (r value=-0.0025) and DASS (r value=0.158), but positively significant with Stress(r value =0.215).

Table-III demonstrates hierarchical regression analysis findings for multi-dimensional health locus of control scale scores and DASS-21 scores of breast cancer patients. The initial model, which included only Internal Health Locus of Control (IHLC) having significant negative correspondence with distress (depression, anxiety, stress collective scores on DASS) scores and indicated it as a significant predictor of distress as designating 6% variance in DASS scores (R^2= 0.06, p<.05; F (1, 113) =6.75, p<0.05). The addition of DHLC in the subsequent model significantly improved the prediction of the overall model with even DHLC alone predicting 28% of variance in DAS scores (R^2 =0.34, ΔR^2 =0.28, p<0.001; F (2, 112) =28.27, p<.001, ΔF =47.04). Interestingly as IHLC, DHLC is also demonstrating a strong negative association with psychological distress (β =-0.54, p<.001), indicating that individuals who perceived greater control by doctors reported lower levels of distress. Further, the

Table-III: Hierarchical regression for MHLoC Scales and DASS-21 Scales

	Variables	B	β	SEB	R2	∆R2
Model 1	IHLoC	-0.51**	-0.24**	0.20	0.06	0.06**
Model 2	IHLoC DHLoC	-0.29 -2 .11***	-0.13 -0.54***	0.17 0.31	0.34	0.28***
Model 3	IHLoC DHLoC CHLoC	-0.32 -2.04*** 0 .53**	-0.15 -.52*** 0.20**	0.17 0 .30 0.21	0.37	0.04**
Model	IHLoC DHLoC CHLoC OHLoC	-0.24** -2.48*** 0 .25 1.12***	-0.11 -0.64*** 0 .09 0.32***	0.16 0.30 0.20 0.28	0.46	.08***

*Note. IHLC= Internal Health Locus of Control, CHLC= Chance Health Locus of Control, DHLC= DHLOC= Doctor Health Locus of Control, OHLC=Others Health Locus of Control, EHLC= External Health Locus of Control; DASS= Depression, Anxiety, Stress Scale. ***p <0.001, **p <0.01, *p <0.05*

inclusion of CHLC in the model 3 resulted in significant further improvement of 4% in predicting distress score (R^2=0 .37, ΔR^2 =0.04, p<0.05; F (3, 111) =22.04, p<0.05, ΔF =6.70). But here CHLC is demonstrating significant and positive (β=0.20, p<0.05) association with psychological distress. Similarly, in the final model, the addition of Others Health Locus of Control (OHLC) again significantly improves the model prediction of patient's distress score (R^2=0.46, ΔR^2 = 0.08, p<0.001; F (4, 110) =22.99, p<0.001, ΔF =16.57). While DHLC (β = -0.64, p<0.001) and OHLC (β = 0.32, p<0.001) remained significantly associated with psychological distress, the association with CHLC was though positive but became non-significant (β = 0.09, p>0 .05).

DISCUSSION

Pakistan has high prevalence rate of breast cancer, high prevalence and mortality rate associated with breast cancer has become a major concern and stress for Pakistani women. Diagnosis and even management of breast cancer may bring psychological distress (including depression, anxiety, and stress) among patients. Uncertainty about the future, loss of control, desperateness, and various apprehensions like that of recurrence, separation from loved ones, continuous pain, bodily changes, and even death may lead to this distress. Distress has become progressively known as a concern that can diminish the life quality of cancer patients. Around 20 to 40 percent of breast cancer patients experience high levels of emotional distress.[17,18] Experiencing extreme distress by patients has also been reported to be associated with even worsening clinical outcomes as proper psychosocial care for cancer patients has been ignored often.[19] So, this research has taken up this perceived distress (depression, anxiety, and stress) among breast cancer women main variable of study.

Although many demographic factors affect the prevalence of psychological distress in breast cancer patients including age, education, family system, area, marital status, monthly income, disease stage20, but few psychological aspects may also lead to increase or decrease in this distress and one such factor that has been studied in this research is breast cancer patient's Health Locus of Control. Health locus of control has been studied in several researches as associated with psychological distress among chronic or severe disease patients like breast cancer patients.[7,21]

Current study found a significant association between Health Locus of Control (HLOC) and distress (depression, anxiety, stress) among breast cancer patients. Internal HLOC and Doctors HLOC negatively correlated with distress, while Chance HLOC showed significant positive correlations with distress. Others HLOC was positively related to anxiety and stress but negatively related to depression. Patients with strong internal control beliefs or reliance on doctors experienced less psychological distress compared to those with stronger beliefs in chance or other external controls. Our findings support previous research on Health Locus of Control (HLOC) in breast cancer and chronic diseases. They indicated a positive correlation between an external HLOC and psychological issues, while reliance on doctors positively impacts distress. Patients with an Internal HLOC demonstrate improved psychological adjustment and health outcomes.[21,22]

Further exploration through regression analysis indicated that distinctive focus of breast cancer women on various dimensions of HLOC can predict their psychological distress outcomes. Consequently, high scores on internal and doctor dimension of HLOC came out as predicting less distress among breast cancer patients and high score on chance and others HLOC externality dimensions may result in high psychological distress among patients. More interestingly, doctor dimension of HLOC came out as the biggest individual predictor of lowering psychological distress beliefs among breast cancer patients in our study and that finding may have important health implications.[23]

In conclusion our research findings highlight that relying more on internal control ability and doctors for one's disease control may result in decreased psychological distress which in turn stretches to long term health benefits. An increase in focus on internal self-control regarding one's health may also lead to improvement in experiencing psychological distress during the course of disease and overall health. Whereas, focusing more on chance factors and other external factor for one's health control may lead to increased psychological distress during the course of illness and in turn further depreciates the health conditions and treatment outcomes. Findings specifically pointed out the health benefits of Internal Health Locus of Control and Doctors Health Locus of Control for the adjustment and treatment of breast cancer patients, confirm previous facts.[23]

Despite limitations, including sample size and locality, findings of this research have significant implications for the healthcare system and government policies. First, psychological evaluation and counseling should be integrated into health protocols for breast cancer treatment. Support groups and counseling services can help patients focus on internal factors for better psychological adjustment, providing benefits from diagnosis through treatment, recurrence, and acceptance of mortality. Second, the study underscores the positive psychological impact of relying on doctors, highlighting the need for the government to ensure all citizens have access to quality health services and medical experts.

Conflict of Interest: None

Funding Source: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

RN & SA: Data acquisition, data analysis, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. World Health Organization. Breast Cancer [Internet]. Geneva: World Health Organization; 2023 [cited 2024 Mar 31]. Available from: https://www.who.int/news-room/fact-sheets/detail/breast-cancer?gad_source=1
2. Shan Y, Ji M, Xing Z, Dong Z, Xu X. Susceptibility to breast cancer misinformation among Chinese patients: cross-sectional study. JMIR Form Res 2023 [cited 2024 Mar 31];0. Available from: [PMC free article] [PubMed] [Google Scholar]
3. Jabeen Z, Shah N, Ahmer Z, Khan S, Khan AH, Khan M. Effect of health education on awareness and practices of breast self-examination among females attending a charitable hospital at North Karachi. J Pak Med Assoc 2021; 71: 2156–2162.
4. Pereira AA, Destro JR, Picinin Bernuci M, Garcia LF, Rodrigues Lucena TF. Effects of a WhatsApp-delivered education intervention to enhance breast cancer knowledge in women: mixed-methods study. JMIR Mhealth Uhealth 2020; 8: 0.
5. Mubarik S, Wang F, Luo L, Hezam K, Yu C. Evaluation of Lee-Carter model to breast cancer mortality prediction in China and Pakistan. Front Oncol 2023;13:1101249.
6. Shafique R, Rustam F, Choi GS, Díez IT, Mahmood A, Lipari V, et al. Breast Cancer Prediction Using Fine Needle Aspiration Features and Upsampling with Supervised Machine Learning. Cancers (Basel) 2023; 15(3): 681. https://doi.org/10.3390/cancers15030681
7. Naz R, Kamal A, Mahmood A. Relationship of emotional intelligence and health locus of control among female breast cancer patients in Pakistan: emotional intelligence female breast cancer. Pakistan Armed Forces Medical Journal 2016; 66(6): 903–8. https://www.pafmj.org/PAFMJ/article/view/1281
8. Soqia J, Al-shafie M, Agha LY, Almieer MB, Alhomsi D, Saadoun R, et al. Depression, anxiety and related factors among Syrian breast cancer patients: a cross-sectional study. BMC Psychiatry 2022; 22: 796.https://doi.org/10.1186/s12888-022-04469-y
9. Brown AJ, Sun CC, Urbauer DL, Bodurka DC, Thaker PH, Ramondetta LM, et al. Feeling powerless: locus of control as a potential target for supportive care interventions to increase quality of life and decrease anxiety in ovarian cancer patients. Gynecol Oncol 2015; 138(2): 388-93. https://doi.org/10.1016/j.ygyno
10. Pahlevan Sharif S. Locus of control, quality of life, anxiety, and depression among Malaysian breast cancer patients: The mediating role of uncertainty. Eur J Oncol Nurs 2017; 27: 28-35. https://doi.org/10.1016/j.ejon.2017.01.005
11. Lefcourt HM. Locus of control and the response to aversive events. Canadian Psychological Review/Psychologie Canadienne 1976; 17(3): 202–209. https://doi.org/10.1037/h0081839
12. Rotter JB. Internal - External Locus of Control Scale (I.E.). Assess locus of control dimension of personality: internal or external. 1966.
13. Wallston KA, Stein MJ, Smith CA. Form C of the MHLC Scales: A condition-specific measure of locus of control. Journal of Personality Assessment. 1994; 63(3): 534–53. https://doi.org/10.1207/s15327752jpa6303_10
14. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behav Res Ther. 1995; 33(3): 335-43. https://doi.org/10.1016/0005-7967(94)00075-u
15. Aslam N, Kamal A, Translation, (2018). Validation and Effectiveness of Depression, Anxiety and Stress Scale (DASS-21) in Assessing the Psychological Distress among Flood Affected Individuals. Research Interest Score.
16. Kim HY. Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. Restor Dent Endod 2013; 38(1): 52-4. https://doi.org/10.5395/rde.2013.38.1.52
17. Ali MM, Khokhar MA, Ahmed HN. Primary care physicians and cancer care in Pakistan: a short narrative. J Cancer Policy. 2020; 25: 100238.
18. Saeedi-Saedi H, Shahidsales S, Koochak-Pour M, Sabahi E, Moridi I. Title of the Article. Iran J Cancer Prev 2015; 8(1): 36–41.
19. Artherholt SB, Fann JR. Psychosocial care in cancer. Curr Psychiatry Rep 2012; 14(1): 23–29.
20. Park EM, Gelber S, Rosenberg SM, Seah DSE, Schapira L, Come SE et al. Anxiety and Depression in Young Women With Metastatic Breast Cancer: A Cross-Sectional Study. Psychosomatics 2018; 59(3): 251-258.https://doi.org/10.1016/j.psym.2018.01.007
21. Anagnosti F, Hardavella G, Lekka D, Darahani D, Anthouli-Anagnostopoulou F, Papagiorgis P et al. The Relationship of Health Locus of Control and Psychological Distress in Lung Cancer Patients during the COVID-19 Pandemic. Psychology 2023; 14(2). https://doi.org/10.4236/psych.2023.142012
22. Pourhoseinzadeh M, Gheibizadeh M, Moradikalboland M. The relationship between health locus of control and health behaviors in emergency medicine personnel. Int J Community Based Nurs Midwifery 2017; 5(4): 397–407.
23. Marta Kulpa, , Mariola Kosowicz, Beata J. Stypuła-Ciuba, Dorota Kazalska. Anxiety and depression, cognitive coping strategies, and health locus of control in patients with digestive system cancer . Prz Gastroenterol 2014; 9 (6): 329–335. https://doi.org/10.5114/pg.2014.47895