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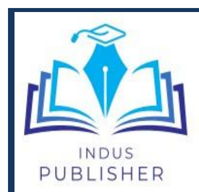

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Psychological Distress, A Risk or A Consequence: An Assessment of The Aetiological Predictability of Depression, Anxiety and Stress Among the Newly Diagnosed Breast Cancer Patients of Pathan Ethnicity

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ABSTRACT

Background: Breast cancer is a major global health concern and the leading cause of cancer-related deaths in women. While early detection improves survival, psychological distress's role in its etiology remains unclear, despite its significant impact on patients and their families. **Methodology:** This prospective analytical cross-sectional study, conducted a comprehensive assessment of the status of psychological distress among the newly diagnosed breast cancer patients of pathan ethnicity of Khyber Pakhtunkhwa, Pakistan. Based on written consent a sample of 235 breast cancer patients were assessed for the prevalence of depression, anxiety, and stress using the Depression Anxiety Stress Scale (DASS). **Results:** The findings reveal that a substantial proportion of patients experience severe to extremely severe levels of psychological distress, with 25.7% reporting severe depression and 41.7% experiencing extreme depression. Anxiety and stress levels were also notably high, emphasizing the emotional challenges and stressful life events faced by patients. The parameters of the DASS showed though were found to be significantly varied across demographics, all levels varied significantly. The mean score of depression (17.55±5.051), anxiety (19.78±13.17), and depression (27.6±13.17) were significantly different with in the sample however these scores lied in the moderate and severe categories of the scale. The regression statistics further highlighted the factors such as age, family structure, parity, and body mass index were the strongest influencing and predictors of the pervasive psychological distress among the pathan women of this region. **Conclusions:** These results highlight the critical need for psychological support in breast cancer care, advocating for early mental health interventions, counseling, and family-centered support programs to improve overall well-being and treatment outcomes.

INTRODUCTION

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer deaths among females worldwide and the second most common cancer overall, and it develops in a complex, multi-stage process. Early identification boosts survival chances by more than 80% in many affluent countries. Over the last decade, research has helped us better grasp its pathophysiology, medication resistance, and genetic linkages. Expanded chemoprevention strategies and developing biological approaches are intended to improve patient outcomes [1, 2]. Cancer may induce the development of psychiatric disorders especially among women whom having breast cancer and these effects can be on both the patients and their family members [3]. Depression and anxiety are the two most common psychiatric comorbidities present among breast cancer patients [4, 5]. It does not only impact the patient but also has a severe psychological impact on their relatives. Family members, particularly primary caregivers, may feel emotional discomfort, anxiety, and despair as they navigate the intricacies of helping a loved one through therapy. The mental and emotional toll can have an impact on their well-being, resulting in higher stress and a lower quality of life [6]. The uncertainty surrounding the patient's prognosis, financial pressure, and caregiving obligations can all contribute to burnout. Studies have found that caregivers of breast cancer patients frequently report higher levels of psychological distress than the general population [7].

Psychological distress includes stress, depression and anxiety and is usually referred to as psychological dysfunction. Psychological distress may initiate or influence the intricate progression of breast cancer. The potential relationship of the psychological distress and breast cancer include hormonal factors and inflammation [8, 9]. Breast cancer is a multifactor disease. Many

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studies have reported stressful life events to be associated with the development of breast cancer [10[. A large number of epidemiological studies have supported this association, reporting women with breast cancer has experienced more stressful life events prior to the onset of the disease as compared to their healthy counterparts. Although this association is still controversial and many prospective population-based investigations have led to inconsistent results [11-15].

While some researches have shown an increased risk of breast cancer among women who had either one adverse life event or multiple stressful life changes based on case control studies [16-19]. An increased risk has also been reported among women who experienced maternal death in childhood or chronic depression along severe episodes [16]. Major life events including death of a husband or a close relative/friend, divorce or separations, stress at work, and other stressful life events for a specific subcategories of major life events have been shown to be the risks for breast cancers [20-23].

Sociocultural determinants of health are non-medical elements, sociopolitical, economic forces, and demographic and systemic factors, and living conditions which affect health and social outcomes in individuals [24]. Research demonstrated the negative impact of sociocultural determinants on the general population's physical, social, and mental well-being [25], and coping abilities of people with chronic illnesses. Psychological distress is described as non-specific symptoms of anxiety and depression [26] and emotional suffering due to demands and inability to cope with everyday stressors [27]. Other factors such as income, employment, socioeconomic status, education, food security, housing, social support, discrimination, childhood adversity, as well as the neighborhood social and physical conditions in which people live, and the ability to access acceptable and affordable health care have been linked to mental illnesses that in turn are inextricably linked to life circumstances [28]

Given the complexity of breast cancer etiology and the inconsistencies that can be attributed to the weaknesses in the methodologies of the many studies future studies on the significance of psychological distress and etiology of breast cancer would benefit from the combination of advances in molecular biology into study designs and the creation of transdisciplinary study teams. The current study was an effort to analyze the psychological/mental health of the newly diagnosed breast cancer patients in KP, Pakistan.

METHODOLOGY

Study Design and Sample

The current prospective analytical cross sectional was design to ascertain the depression anxiety and stress among newly diagnosed breast cancer Pushtun female patients in KP, Pakistan. A sample of 225 newly diagnosed non-invasive breast cancer patients were recruited at random based on written consent. This investigation was conducted at the surgical section, Ward B of the Khyber Teaching Hospital Peshawar, Institute of Radiology and Nuclear Medicine, Peshawar, and Oncology department of the Hayatabad Medical Complex, Peshawar from October 2021 to January 2023. The study was approved by the Institutional Ethical Approval Committee of the College of Home Economics at the University of Peshawar's (No. 486/H.ECO).

Inclusion Criteria

i. Newly diagnosed breast cancer females.
ii. Age >18 and <65
iii. Women with no history of psychological distress, delirium, or psychosis
iv. Women with no recent history of acute life stressful life event
v. Women with no medication history for depression and anxiety

Mode of Data Collection

A Self-constructed questionnaire was standardized and used to collect data about:

Sociodemographic Data

Sociodemographic data included: age, marital status, no. of children, residential area, and family income.

Anthropometric Measurement

Age

The age of all the respondents was taken in years.

Bod Mass Index

It was calculated from the height and weights of the respondents through a formula

BMI = weight (kg) / height (m)^2

Assessment of Psychological Distress

A standardized Depression, Anxiety and Stress Scale - 21 Items (DASS-21) was submitted to each respondent through a face-to face interview in order to attain accurate responses. The DASS-21 is the short form of the DASS-42, a self-report scale designed to measure the negative emotional states of depression, anxiety and stress. As the three scales of the DASS have been shown to have high internal consistency and to yield meaningful discriminations, the scales should meet the needs of both researchers and clinicians who wish to measure current state or change in state over time (e.g., in the course of treatment). This scale is suitable for clinical and non-clinical settings [29]. DASS- 21 is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content.

Statistical Analysis

Data was analyzed by using Statistical Package for

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Social Sciences (SPSS) version 20 for entering and analysis of collected data.

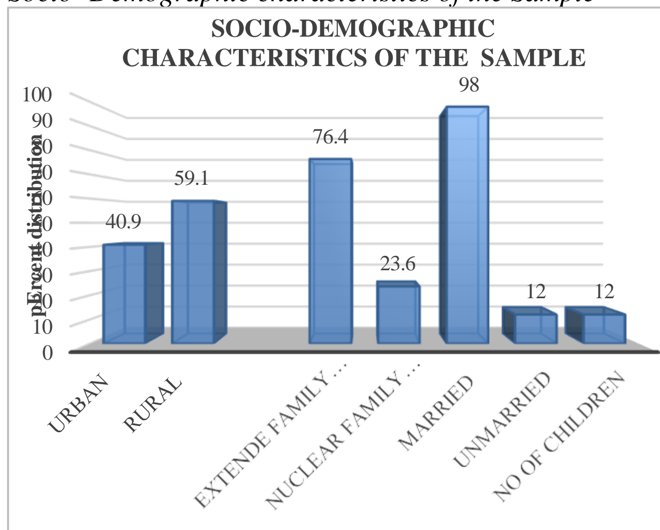
RESULTS AND DISCUSSION

Socio Demographic Characteristics of the Sample

The study investigated participants' socio-demographic factors and found that 76.4% lived in joint/extended households and 23.6% in nuclear families. According to the marital status data, 98% of women were married and 12% were unmarried. In relation to occupation, 53% of spouses were workers, 16% were shopkeepers, 13% were teachers, 6% were merchants, 2% were lawyers, and 13% worked in low-wage positions. According to these data, the majority of participants came from extended families and had modest monthly earnings.

Figure 1

Socio- Demographic characteristics of the Sample



Anthropometric Characteristics of the Sample

The patients' ages vary from 18 to 65 years, with an average of 42.7 years (±12.75). The BMI ranges from 19.5 to 41.7, with an average of 28.8 (±4.98), showing the majority of patients are overweight or obese.

Table 1

Anthropometric Profiles of the Patients

Parameters	RANGE	Mean ±SD	P value	Reference Values
Patient age (years)	18 -65	42.7 ± 12.75	------	------------
Body Mass Index	19.5-41.7	28.8 ± 4.98	.000	18.5-24.9

The Prevalence of Distress among the Sample

The levels of Depression, Anxiety and Stress in early-diagnosed breast cancer patients (Table 1 and Figure a) showed that 47.1% of patients had no depression while 10.2% experience mild, 10.6% moderate,25.7% severe, and 41.7% extremely severe depression. In anxiety, only 10.6% were in the normal range, while 18.2% had mild, 12.4% moderate, 24.8% severe, and 11.5% extremely severe anxiety. For stress, 32.4% were normal, 14.6% had mild stress, 20.4% moderate, 29.7% severe, and 7.1% experienced extremely severe stress. The data shows a high prevalence of severe mental health issues, emphasizing the need for psychological support.

Table 2

Depression Anxiety Stress Scale (DASS) Prevalence among the Respondents

DASS	State	Score	Frequency	%
Depression	Normal	0-9	106	47.1
	Mild	10-13	23	10.2
	Moderate	14-20	24	10.6
	Severe	21-27	58	25.7
	Extremely severe	28+	24	41.7
Anxiety	Normal	0-7	94	10.6
	Mild	8-9	41	18.2
	Moderate	10-14	28	12.4
	Severe	15-19	56	24.8
	Extremely severe	20+	26	11.5
Stress	Normal	0-14	73	32.4
	Mild	15-18	33	14.6
	Moderate	19-25	46	20.4
	Severe	26-33	67	29.7
	Extremely severe	34+	16	7.11

Figure 2

The Prevalence of Psychological Distress among the Respondents

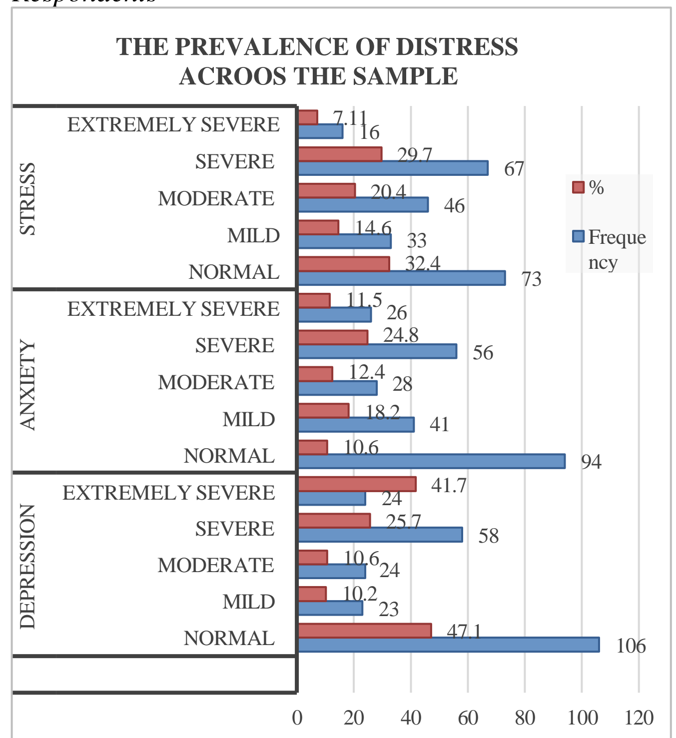


Table 3

Mean Score of DASS Scores of the Patients

Indicators	Range	Mean Standard Deviation	P value
Depression	9-38	17.55±5.051	0.041
Anxiety	13-42	19.78±13.17	0.029
Stress	19-42	27.6±13.17	0.002

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The data regarding the means scores on DASS showed a bigger interquartile range and the mean values showed significant differences among the sample in depression and anxiety. The mean depression scores of 17.55±5.051 indicated moderate depression within the sample although some patients had scores of extreme depression. Similar patterns were observed in the mean scores of anxiety (19.78±13.17) which fell within the severe level of the stress with significant within the sample difference. The scores of stress component of the test showed a mean of 27.6±13.17 which also fell within the severe category of the DASS. These results are quite are quite disturbing as the high stress level may be attributed to the diagnosis of the disease but anxiety and depression are usually pervasive mental problems indicating these women were into environments (as evident from the socio demographic characteristics) that were already affecting their mental well-being.

Table 4

Regression statistics (Unadjusted) of the probable Predictors of Psychological Distress among the sample

Parameters		Unstandardized Coefficients		Standardized Coefficients	t	P Value
		B	Std. Error	Beta		
			Depression			
1.	Patient Age	0.018	0.041	-0.045	0.436	0.000
2.	No of Children	0.173	0.228	-0.077	0.758	0.000
3.	Family Income	4.519	0.298	-0.028	0.288	0.000
4.	Type of Family	2.587	1.143	-0.219	2.264	0.000
5.	Body Mass Index	0.145	0.104	-0.143	1.389	0.000
			Anxiety			
1.	Patient Age	-0.003	0.035	-0.010	-0.096	0.000
2.	No of Children	-0.073	0.195	-0.038	-0.374	0.000
3.	Family Income	2.188	0.000	0.159	-1.626	0.000
4.	Type of Family	1.490	0.980	0.148	-0.520	0.000
5.	Body Mass Index	0.157	0.089	.0182	1.756	0.000
			Stress			
1.	Patient Age	-0.046	0.047	-0.100	-0.976	.000
2.	No of Children	0.180	0.259	0.070	0.696	.000
3.	Family Income	-0.046	0.047	-0.100	-0.976	.000
4.	Type of Family	3.05	0.000	0.164	-1.706	.000
5.	Body Mass Index	3.268	1.302	0.240	2.510	.000

The regression analysis examines the relationship between psychological distress (depression, anxiety, and stress) and factors such as patient age, number of children, family income, type of family, and body mass index (BMI). For depression, type of family (ß = 2.587) had the strongest positive effect, suggesting that family structure influences depressive symptoms. BMI (ß = .145) and number of children (ß = .173) also showed a positive relationship, indicating that weight and family responsibilities might contribute to depression. Regarding anxiety, BMI (ß = .157) was the most notable factor, indicating that individuals with higher BMI may experience more anxiety. Type of family (ß = 1.490) also had a positive relationship, highlighting the role of family dynamics in anxiety levels. Family income (ß = 2.188) showed a weak association. For stress, BMI (ß = 3.268) was the most significant predictor, emphasizing the role of body weight in stress levels. Type of family (ß = 3.051) and number of children (ß = .180) also had some influence, suggesting that family-related factors contribute to stress. These findings highlight the importance of addressing psychological distress in newly diagnosed breast cancer patients, with a focus on family structure and BMI as contributing factors.

The findings of the current study for the assessment of mental distress have opened new avenues for the psycho-oncology which has never been addressed in Pakistan. One of the biggest problems in determining the role of stress is the difficulty in isolating it as a single variable. Breast cancer occurs due to a large number of demographic and physiological risk factors and all these factors have the potential to raise or decrease the psychological impacts. Many studies have reported that stress has a more pronounced effect on young women, who tend to respond more severely to life events and are also more prone towards obesity and many life factors that a role in the causation and effects of stress related distress [30-33]

Cancer is not a homogenous disease, as stressors are not generic and their effects are not identical, individual susceptibility may offer one of the explanations. The genetic predisposition of stress induced cancer and personality traits as per many studies have predicted the risk for women with personality Type C in women with cancer and without cancer [34-38].

CONCLUSIONS

Psychological distress and specifically the stress is an imminent risk factor and stressful life events are real. Though the current study was on a limited sample of 235 group of women (and probably the first reported study in Pakistan) and the final conclusion ids difficult to be

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asserted. However, the relationship of stressful life, depression, and anxiety and breast cancer development have the stronger possibility and that this model further needs to be verified through other complementary methods. This study also emphasize the need of care giving and psychological support to females living in ignorance, poverty, multiparity and a list of life compromises that are to be addressed.

REFERENCES

1. Ferlay, J., Soerjomataram, I., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., ... & Bray, F. (2015). Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. International journal of cancer, 136(5), E359-E386. https://doi.org/10.1002/ijc.29210
2. Sun, Y., Zhao, Z., Yang, Z., Xu, F., Lu, H., Zhu, Z., Shi, W., Jiang, J., Yao, P., & Zhu, H. (2017). Risk factors and preventions of breast cancer. *International Journal of Biological Sciences*, *13*(11), 1387-1397. https://doi.org/10.7150/ijbs.21635
3. Alacacioglu, A., Ulger, E., Varol, U., Yildiz, I., Salman, T., Bayoglu, V., Dirican, A., Demir, L., Akyol, M., Yildiz, Y., Kucukzeybek, Y., Ataman, G., Can, H., Alacacioglu, I., & Tarhan, M. O. (2015). Depression, anxiety and sexual satisfaction in breast cancer patients and their Partners-Izmir oncology group study. *Asian Pacific Journal of Cancer Prevention*, *15*(24), 10631-10636. https://doi.org/10.7314/apjcp.2014.15.24.10631
4. Baumeister, H., Kriston, L., Bengel, J., & Härter, M. (2010). High agreement of self-report and physician-diagnosed somatic conditions yields limited bias in examining mental–physical comorbidity. *Journal of Clinical Epidemiology*, *63*(5), 558-565. https://doi.org/10.1016/j.jclinepi.2009.08.009
5. Härter, M., Reuter, K., Aschenbrenner, A., Schretzmann, B., Marschner, N., Hasenburg, A., & Weis, J. (2001). Psychiatric disorders and associated factors in cancer. *European Journal of Cancer*, *37*(11), 1385-1393. https://doi.org/10.1016/s0959-8049(01)00136-8
6. Grunfeld, E. (2004). Family caregiver burden: Results of a longitudinal study of breast cancer patients and their principal caregivers. *Canadian Medical Association Journal*, *170*(12), 1795-1801. https://doi.org/10.1503/cmaj.1031205
7. Otto, A. K., Ketcher, D., Heyman, R. E., Vadaparampil, S. T., Ellington, L., & Reblin, M. (2020). Communication between advanced cancer patients and their family caregivers: Relationship with caregiver burden and preparedness for caregiving. *Health Communication*, *36*(6), 714-721. https://doi.org/10.1080/10410236.2020.1712039
8. Mehnert, A., Hartung, T., Friedrich, M., Vehling, S., Brähler, E., Härter, M., Keller, M., Schulz, H., Wegscheider, K., Weis, J., Koch, U., & Faller, H. (2017). One in two cancer patients is significantly distressed: Prevalence and indicators of distress. *Psycho-Oncology*, *27*(1), 75-82. https://doi.org/10.1002/pon.4464
9. Yang, H., Brand, J. S., Fang, F., Chiesa, F., Johansson, A. L., Hall, P., & Czene, K. (2016). T ime-dependent risk of depression, anxiety, and stress-related disorders in patients with invasive and in situ breast cancer. *International Journal of Cancer*, *140*(4), 841-852. https://doi.org/10.1002/ijc.30514
10. Hu, K. (2022). Psychological distress and breast cancer : a bidirectional link. Karolinska Institutet. Thesis. https://hdl.handle.net/10616/48257
11. Burnette, J. L., Knouse, L. E., Vavra, D. T., O'Boyle, E., & Brooks, M. A. (2020). Growth mindsets and psychological distress: A meta-analysis. *Clinical Psychology Review*, *77*, 101816. https://doi.org/10.1016/j.cpr.2020.101816
12. Kruk, J., & Aboul-Enein, H. Y. (2003). Occupational physical activity and the risk of breast cancer. *Cancer Detection and Prevention*, *27*(3), 187–192. https://doi.org/10.1016/s0361-090x(03)00032-1
13. Toyokuni, S., Okamoto, K., Yodoi, J., & Hiai, H. (1995). Persistent oxidative stress in cancer. *FEBS Letters*, *358*(1), 1–3. https://doi.org/10.1016/0014-5793(94)01368-b
14. McPherson, K. (2000). ABC of breast diseases: Breast cancer epidemiology, risk factors, and genetics. *BMJ*, *321*(7261), 624–628. https://doi.org/10.1136/bmj.321.7261.624
15. Bilimoria, M. M., & Morrow, M. (1995). The woman at increased risk for breast cancer: Evaluation and management strategies. *CA: A Cancer Journal for Clinicians*, *45*(5), 263-278. https://doi.org/10.3322/canjclin.45.5.263
16. Black, D. (1994). The genetics of breast cancer. *European Journal of Cancer*, *30*(13),

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1957-1961. https://doi.org/10.1016/0959-8049(94)00386-j

17. Brinton, L. A., & Devesa, S. S. (1996). Etiology and pathogenesis of breast cancer. *Diseases of the Breast*, 159-306.
18. Kruk, J., & Aboul-Enein, H. Y. (2004). Psychological stress and the risk of breast cancer: A case–control study. *Cancer Detection and Prevention*, *28*(6), 399-408. https://doi.org/10.1016/j.cdp.2004.07.009
19. Peled, R., Carmil, D., Siboni-Samocha, O., & Shoham-Vardi, I. (2008). Breast cancer, psychological distress and life events among young women. *BMC Cancer*, *8*(1). https://doi.org/10.1186/1471-2407-8-245
20. Keinan-Boker, L., Vin-Raviv, N., Liphshitz, I., Linn, S., & Barchana, M. (2009). Cancer incidence in Israeli Jewish survivors of World War II. *JNCI Journal of the National Cancer Institute*, *101*(21), 1489-1500. https://doi.org/10.1093/jnci/djp327
21. Tas, F., Karalar, U., Aliustaoglu, M., Keskin, S., Can, G., & Cinar, F. E. (2011). The major stressful life events and cancer: Stress history and cancer. *Medical Oncology*, *29*(2), 1371-1377. https://doi.org/10.1007/s12032-011-9927-7
22. Tas, F., Karalar, U., Aliustaoglu, M., Keskin, S., Can, G., & Cinar, F. E. (2011). The major stressful life events and cancer: Stress history and cancer. *Medical Oncology*, *29*(2), 1371-1377. https://doi.org/10.1007/s12032-011-9927-7
23. Kruk, J. (2011). Self-reported psychological stress and the risk of breast cancer: A case-control study. *Stress*, *15*(2), 162-171. https://doi.org/10.3109/10253890.2011.606340
24. World Health Organization. (2020). Social determinants of health. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1
25. Macintyre, A., Ferris, D., Gonçalves, B., & Quinn, N. (2018). What has economics got to do with it? The impact of socioeconomic factors on mental health and the case for collective action. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0063-2
26. Marmot, M., & Bell, R. (2019). Social determinants and non-communicable diseases: Time for integrated action. *BMJ*, l251. https://doi.org/10.1136/bmj.l251
27. Cuijpers, P., Smits, N., Donker, T., Ten Have, M., & De Graaf, R. (2009). Screening for mood and anxiety disorders with the five-item, the three-item, and the two-item mental health inventory. *Psychiatry Research*, *168*(3), 250-255. https://doi.org/10.1016/j.psychres.2008.05.012
28. World Health Organization. (2022). *World mental health report: transforming mental health for all*. Geneva: World Health Organization.
29. Lovibond, S. H., & Lovibond, P. F. (1995). Depression, anxiety, stress scales. *PsycTESTS Dataset*. https://doi.org/10.1037/t01004-000
30. Toleutay, U., Reznik, V., Kalmatayeva, Z., & Smigelskas, K. (2013). Risk factors of breast cancer in Kyzylorda oblast of Kazakhstan: A case-control study. *Asian Pacific Journal of Cancer Prevention*, *14*(10), 5961-5964. https://doi.org/10.7314/apjcp.2013.14.10.5961
31. Wang, L., Liao, W., Tsai, C., Wang, L., Mao, I., Chen, C., Kao, P., & Yao, C. (2013). The effects of perceived stress and life style leading to breast cancer. *Women & Health*, *53*(1), 20-40. https://doi.org/10.1080/03630242.2012.732680
32. Lillberg, K., Verkasalo, P. K., Kaprio, J., Teppo, L., Helenius, H., & Koskenvuo, M. (2001). Stress of daily activities and risk of breast cancer: A prospective cohort study in Finland. *International Journal of Cancer*, *91*(6), 888-893. https://doi.org/10.1002/1097-0215(200002)9999:9999<::aid-ijc1138>3.0.co;2-d
33. Nielsen, N. R., Zhang, Z., Kristensen, T. S., Netterstr∅m, B., Schnohr, P., & Gr∅nbæk, M. (2005). Self reported stress and risk of breast cancer: Prospective cohort study. *BMJ*, *331*(7516), 548. https://doi.org/10.1136/bmj.38547.638183.06
34. Metcalfe, C., Smith, G. D., Macleod, J., & Hart, C. (2007). The role of self-reported stress in the development of breast cancer and prostate cancer: A prospective cohort study of employed males and females with 30 years of follow-up. *European Journal of Cancer*, *43*(6), 1060-1065. https://doi.org/10.1016/j.ejca.2007.01.027
35. Michael, Y. L., Carlson, N. E., Chlebowski, R. T., Aickin, M., Weihs, K. L., Ockene, J. K., Bowen, D. J., & Ritenbaugh, C. (2009). Influence of stressors on breast cancer incidence in the women's health initiative. *Health Psychology*, *28*(2), 137-146. https://doi.org/10.1037/a0012982

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36. Peled, R., Carmil, D., Siboni-Samocha, O., & Shoham-Vardi, I. (2008). Breast cancer, psychological distress and life events among young women. *BMC Cancer*, *8*(1). https://doi.org/10.1186/1471-2407-8-245

37. Morris, T., Greer, S., Pettingale, K. W., & Watson, M. (1981). Patterns of expression of anger and their psychological correlates in women with breast cancer. *Journal of Psychosomatic Research*, *25*(2), 111-117. https://doi.org/10.1016/0022-3999(81)90098-2

38. Price, M. A., Tennant, C. C., Butow, P. N., Smith, R. C., Kennedy, S. J., Kossoff, M. B., & Dunn, S. M. (2001). The role of psychosocial factors in the development of breast carcinoma: Part II. *Cancer*, *91*(4), 686-697. https://doi.org/10.1002/1097-0142(20010215)91:4<686::aid-cncr1052>3.0.co;2-0

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