Psychological Comorbidity of Breast Cancer: A Cross-Sectional Study from Pakistan

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Abstract:

Background: Psychological comorbidity of breast cancer is a serious global health problem that inflicts huge economic and societal costs to patients themselves, families, as well as healthcare systems. The aim this study was to estimate the prevalence of common mental disorders (anxiety and depression) in breast cancer patients.

Methods: The present study is cross sectional study that was a secondary analysis of a Randomized Controlled Trial in Pakistan. A total of 402 breast cancer patients were recruited from both public and private hospitals in Karachi Pakistan. Patients were assessed for depression using the structured questionnaire "Patient Health Questionnaire (PHQ-9)" and anxiety using the "Generalized Anxiety Disorder scale (GAD-7)".

Findings: Participants' mean age was 38.9 years, majority had no formal education (77.4%). Their mean duration of breast cancer illness was 28.9 months. A large percentage of the study sample was found to be anxious (59.7%), depressed (69.4%) and had suicidal ideation (47.5%).

Conclusion: High prevalence of anxiety, depression and suicidal ideation in breast cancer patients highlights the vital role of carrying out regular

psychosocial assessments and offering the necessary, culturally relevant support to these patients.

Keywords: Breast cancer; Depression; Anxiety; Suicidal ideation; Pakistan

Introduction

Breast cancer is the most commonly occurring cancer among females globally, effecting approximately 2.1 million females annually (WHO, 2018). Breast cancer is the greatest contributor to cancer-related mortality among females across the world. It was reported that in 2018 a total of 627,000 deaths occurred because of breast cancer which is approximately 15% of all deaths caused by cancer in females (WHO, 2018). Mortality rates (annual) were reported to be much higher in South Asia (3.06%) compared to high income countries such as the United States (1.69%) (Ranganathan et al., 2018). In the time period between 2005 and 2015, mortality rates in South Asia has increased to approximately 27.9% (Ranganathan et al., 2018). Pakistan is amongst the Asian countries with one of the highest incidence rates of breast cancer (Menhas & Umer, 2015). A research center in Pakistan reported that breast cancer is one of the frequently reported cancer (45.4%) among women in Pakistan with young women being more vulnerable (Basra, Saher, Athar, & Raza, 2016).

Common mental disorders (such as depression and anxiety) in breast cancer patients are associated with increased risk of cancer incidence and increased risk of mortality with their co-occurrence further increasing the risk of cancer mortality and posing a huge burden on healthcare systems (Shang, Hodge, Peng, He, & Zhang, 2020). A systematic review (of 75 studies) also show that people with mixed physical and mental multimorbidity report greater risk of active safety incidents (such as adverse drug reactions) (Panagioti et al., 2015). Anxiety and/or depression are commonly reported experiences by breast cancer survivors even after many years of diagnosis and these experiences lead to greater disability and have adverse consequences for health-related quality of life (Rogers et al., 2017). In a recent systematic review of 72 studies, global estimates of depression in breast cancer patients were 32.2% (Pilevarzadeh et al., 2019). A recent meta-analysis also reported high prevalence of anxiety (41.9%) in this population (Hashemi et al., 2020).

Despite high prevalence of breast cancer in Pakistan, data on psychological comorbidities is limited and what is available is with a small sample size (Khan et al., 2016). Therefore, the present secondary analysis aimed at assessing prevalence of depression and anxiety in Karachi, the largest metropolitan city in Pakistan, and fifth largest city in the world and

hence the findings may represent and highlight the needs of a large sized population. This study is secondary analysis from data collected as part of a multicenter Randomized Controlled Trial “Moving on After Breast Cancer” (trial registration number: NCT03571984; Ethics approval number: IPP/BU/OM103/1676)

Material and Methods

Setting: Patients were approached by a trained researcher in outpatient departments (OPDs) of oncology and medical units in two government run hospitals (Civil hospital, Abbasi Shaheed hospital) and a charity hospital (Dar-ul-sakoon) in Karachi.

Study design: Cross sectional research design

Sampling technique: A convenient sampling technique was used. Consecutive patients with breast cancer presented to participating hospitals were approached by a trained researcher and those who consented to participate were included in the study. These patients were originally screened for a Randomized Controlled Trial “Moving on After Breast Cancer” (NCT03571984).

Sample size calculation: A freely available Raosoft calculator (www.raosoft.com) was used for sample size calculation, considering 26% prevalence rate of depression in this patient population (Chen et al., 2010) with confidence interval of 95% and margin of error 5%. The estimated minimum sample size was 292.

Study duration: February 2018 – March 2020

Instruments

Socio-demographic question: A questionnaire was developed by the researcher to collect information about social and demographic variables such as; age, marital status, occupation, education, duration of BC, and information about previous psychiatric illness.

Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001): The PHQ-9 is a structured, self –administered scale to assess level of depression. Eight items (out of nine) assess participants’ depressive symptoms. The last question is about participants’ functional impairment. Each question has 4 responses: “0-not at all”, “1-several days”, “2-more than half the days”, or “3-nearly every day”. The overall score range is 0 to 27. Urdu translated PHQ-9 (Ahmad, Hussain, Akhtar, & Shah, 2018) was

used in this study. The diagnostic validity of PHQ-9 was established in previously published researches (8 from primary care settings and seven studies conducted in clinics) and PHQ-9 score of ≥ 10 had 88% sensitivity as well as specificity for depression (Maroufizadeh, Omani-Samani, Almasi-Hashiani, Amini, & Sepidarkish, 2019).

Generalized Anxiety Disorder-7 (GAD-7) (Spitzer, Kroenke, & Williams, 2006): Generalized anxiety disorder scale is a self-administered scale to assess symptoms of anxiety (Spitzer et al., 2006). It is comprised of seven items and each item has four responses, “0-not at all”, “1-several days”, “2-more than half the days”, or “3-nearly every day”. Total score ranges between 0-21. The Urdu version scale was used (Ahmad, Hussain, Shah, & Akhtar, 2017) in this study. GAD-7 has shown to have good reliability and construct validity (Löwe et al., 2008).

Procedure

Ethics approval was sought for the main RCT from ethics review board (ERB) of Institute of Professional Psychology (IPP) (IPP/BU/OM/103/1676). The conduct of the research was in agreement with the Declaration of Helsinki. A trained researcher (clinical psychologist) approached breast cancer patients in participating hospitals. Detailed information about the study was provided to the treating physicians in recruiting OPDs who agreed to refer BC patients to the researcher. A total of 654 breast cancer patients were approached, out of which 402 were eligible and enrolled in the study. Out of 654 patients, for 82 patients it was difficult to answer questions because they were physically unwell, for 91 family of the patients did not give consent to the researcher to contact with the patients, for 47 family of the patient mentioned that patient has a serious mental disorder, and for rest of 32 patients treating consultants showed concern about patient's cognitive abilities that may impair their level of attention and their ability to concentrate. A detailed Participant Information Leaflet (PIL) was developed in Urdu and shared by the researcher with the patient and their carers and researcher also provided verbal information about the study. Written (or thumb impression) informed consent was taken from all the participants. Participants were provided with a copy of the signed informed consent one copy of the form was filed in Case Report Form (CRF) for researcher's record. The researcher asked the information about socio-demographic variables first and then administered PHQ-9 and GAD-7. All participants were reimbursed for their time.

Statistics

Statistical analysis was done using statistical software SPSS 23.0 for windows. Means and standard deviations for continuous data (such as age, duration of breast cancer, total

anxiety scores, total depression scores etc) and frequencies and percentages for categorical data (such as marital status, severity categories of depression and anxiety, presence/absence of suicidal ideation) are presented.

Results:

Results show that majority of the women were adults between ages 25 – 60 years 346 (86.1%), with no formal education 311 (77.4%) and were housewives 366 (91%). Their mean duration of breast cancer illness was 28.9 months (Table 1).

Table 1: Characteristics of breast cancer patients (N = 402)

Characteristics	n	(%)
Age (years)		
Young adults (18 - 25)	43	10.7
Adults (25 - 60)	346	86.1
Older adults (61 and above)	13	3.2
Mean (SD)	38.90 (11.86)	
Education (# of years of education)		
No formal education	311	77.4
Primary (1-5)	22	5.5
Secondary (6 – 10)	48	11.9
Intermediate (11 – 12)	10	2.5
Above 12	11	2.7
Marital status		
Single	29	7.2
Married	339	84.3
Divorce/separated/widow	34	8.5
Employment status		
Housewives	366	91
Unemployed	18	4.5
Others (teachers, students, daily wages, Lady health worker, tailor)	18	4.5
Duration of breast cancer in months Mean (SD)	28.97 (19.93)

Depression was present in 279 (69.4%) women and 191 (47.5%) reported suicidal ideation on item no. 9 (thoughts that you would be better off dead, or of hurting yourself) of PHQ-9. A total of 240 (59.7%) women were reported to be anxious on GAD-7 (Table 2).

Table 2: Prevalence of depression, anxiety and suicidal ideation (N = 402)

Scale	n	%
PHQ-9		
≥ 10 (Presence of depression)	279	69.4
< 10 (Absence of depression)	123	30.6
Mean (SD)	11.44 (5.21)	
GAD-7		
≥ 10 (Presence of anxiety)	240	59.7
< 10 (Absence of anxiety)	162	40.3
Mean (SD)	9.40 (4.49)	
Both depression (≥ 10) and anxiety (≥ 10)	217	54
Suicidal Ideation (Item 9 on PHQ-9)		
≥ 1 (Suicidal ideation present)	191	47.5
0 (Suicidal Ideation absent)	211	52.5

Moreover, 217 (54%) participants had both anxiety and depression (Table 2). Findings also show that majority (66.2%) of the women had moderate or moderately severe depression. Similarly, majority of the participants reported moderate anxiety (Table 3).

Table 3: Distribution of patients across severity categories of depression and anxiety (N = 402)

Severity categories	Depression N (%)	Anxiety N (%)
No – minimal	63 (15.5)	74 (18.4)
Mild	60 (14.9)	88 (21.9)
Moderate	159 (39.6)	240 (59.7)
Moderately severe	107 (26.6)	-
Severe	13 (3.2)	-
Total	402 (100)	402 (100)

Discussion

Findings of this cross sectional study report high rates of anxiety, depression and suicidal ideation in breast cancer patients in Karachi, the largest metropolitan city in Pakistan. Results are consistent with previous evidence on psychological comorbidity of breast cancer (Jeffery, Russo, Hopkins, & Burke, 2017). Prevalence of depression in breast cancer patients reported in the current study (69.4%) are almost double as compared to the global prevalence rate reported by a recent systematic review (32.2%) (Pilevarzadeh et al., 2019). Previous evidence show that depression is a frequently diagnosed mental health disorder among Pakistani women (Godil et al., 2017). Majority of women in Pakistan are not financially well-equipped (Tarar & Pulla, 2014) and are either unemployed or working on daily wages in the informal sector. Similar trends are observed in the current study. This may lead to increased vulnerability in Pakistani women not just for depression, but also for other chronic diseases (Rafique et al., 2018), as well as challenges associated with multimorbidity (Singh et al., 2019). Additional challenges caused by multimorbidity may effect women's quality of life and prevent them from active participation in income generation for the family (DiGiacomo, Green, Rodrigues, Mulligan, & Davidson, 2015).

Depression is the most common psychiatric risk factor for suicidal ideation and suicide behaviours (WHO, 2014). Along with depression, the current study also reports high prevalence of suicidal ideation (47.5%) in breast cancer patients. Existing evidence show that approximately 1 out of 10 breast cancer patients reports suicidal ideation one year post-surgery (Kim et al., 2013). Suicidal ideation can be a potential risk of completed

suicide, which is a major public health concern. Every year more than 800, 000 people kill themselves by suicide which estimates to 1 suicide after every 40 seconds (WHO, 2014). Most of these suicides occur in low and middle income countries therefore high suicidal ideation in this vulnerable group of breast cancer patients may have serious implications for low resource settings like Pakistan.

The current study also report high rates of anxiety (66.2%) in breast cancer patients and findings are consistent with prevalence of anxiety (41.9%) reported by a recent review (Hashemi et al., 2020). Anxiety is usually triggered by worries and fear of recurrence of the disease and death (Ellegaard, Grau, Zachariae, & Bonde Jensen, 2017).

To authors' knowledge, this study is one of the largest studies from Pakistan to estimate psychological comorbidity of breast cancer in Pakistan. However, the study has certain limitations as well. Structured self-report questionnaires were used to evaluate rates of depression and anxiety and no diagnostic instrument was used to confirm the diagnosis. Moreover, the study included all breast cancer patients regardless of their stage of illness. It would be worth exploring association of psychological comorbidity with stage of illness in future studies. Using a convenient sampling may also warrant caution on generalizability of the findings. Furthermore, some potential variables may act as confounding variables such as stressful life event, premorbid psychiatric history, social support and others which should be explored in details in future studies.

Conclusion

Findings from this study may have significant implications for patient information, awareness and education, screening for comorbid psychosocial problems. Early detection of and effective culturally appropriate interventions for management of symptoms of depression and anxiety in cancer patients designed to best meet their needs are of huge public health and clinical significance as they will help to improve survival in patients with breast cancer.

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Disclaimer

The abstract or article has not been presented at or published in any conference. The study is part of a PhD thesis.

Conflict of Interest

None to declare

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