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Original Article

Psychiatry/Mental Health Section

Effects of Psychosocial Interventions on Stress and Coping Strategies among Caregivers of Patients with Breast Cancer: A Quasi-experimental Study

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ABSTRACT

Introduction: Breast cancer diagnosis undoubtedly has a devastating impact on patients. While the brunt of it is borne by the patients themselves, their primary caregivers carry a significant burden as well.

Aim: The present study aims to understand the effectiveness of psychosocial interventions in mitigating the stress experienced by the caregivers of patients with breast cancer and in enhancing their coping skills.

Materials and Methods: The present quasi-experimental study was undertaken between the months of May 2023 and December 2024. Primary caregivers aged 18-65 who accompanied breast cancer patients to the hospital for treatment were included in the study. Consecutive sampling techniques were used. Breathing exercises and a personalised counselling session were administered as interventions. The data were subjected to analysis. Fisher's-exact or Chi-square tests were used to analyse categorical variables. The Kingston Caregiver Stress Scale and Modified Brief Cope Scale were used to assess stress and coping strategies. A comparison of both these variables in the experimental and control groups, respectively, was made using the student t-test and a repeated-measures analysis of variance was done to assess the effectiveness of the interventions.

Results: During the second post-test, the mean stress in the experimental group decreased from 26.01±5.14 at baseline to 21.74±3.91, whereas the mean stress in the control group decreased from 25.23±4.59 at baseline to 23.78±4.81. Coping strategies of the experimental group improved from a pre-test score of 72.55±9.08 to 77.09±9.78, whereas the score of the control group decreased from a baseline score of 71.74±8.82 to 68.73±9.09. The findings showed a significant change in stress levels in the experimental group across the pretest, first post-test, and second post-test ($p<0.001$). Post-hoc tests showed significant differences between the first post-test and pretest ($p=0.047$) and between the second post-test and first post-test ($p=0.004$). There was a significant change in coping mechanisms between the pre-test and second post-test for caregivers ($p=0.014$).

Conclusion: The psychosocial interventions that were implemented in the current study were effective in alleviating stress and augmenting coping strategies among the participants.

Keywords: Breathing exercises, Chemotherapy, Counselling, Mastectomy, Supportive programs

INTRODUCTION

Family caregivers of post-mastectomy breast cancer patients fulfil crucial roles as providers of consistent physical, emotional, and social support, helping them navigate the challenges of cancer as well as postoperative care, which results in significant levels of stress [1]. Caregiver burden is compounded by multiple factors like the physical demands of caregiving, the emotional and mental turmoil concerning the occurrence and the trajectory of disease and financial constraints, if any. Patients who have undergone mastectomy require extensive care to manage the incision, empty surgical drains, and to restrain arm mobility to facilitate healing. Chemotherapy poses several challenges, placing further demands of care. Psychological issues like body dysmorphia and depression in the patients, the fear of contamination of the wound, and a potential risk of lymphoedema exacerbate the stress in caregivers. They also battle the persistent fear of losing a loved one. The cumulative stress from all these factors considerably affects the well-being of caregivers [2], who often neglect their own needs as they are deprived of time for self-care [3].

Due to the interdependent nature of the relationship between patients and caregivers, any distress the latter face consequently affects the former, resulting in a lower quality of care received. Robust coping strategies are thus crucial to both caregivers themselves and their dependants [4]. The term caregiver here refers to any unpaid member of the patient's family who provides care [5]. Stress is described as any situation that disrupts a person's equilibrium and triggers psychological and physiological responses that require adaptation [6]. Coping Strategies are defined as the cognitive, emotional, and behavioural efforts that are adopted to mitigate stress [7]. Psychosocial Interventions are non-pharmacological interventions that are implemented to meet the social and psychological needs of the recipient, reduce mental distress and improve overall well-being [8].

Several pre-existing studies have highlighted the effectiveness of psychosocial interventions in improving caregiver outcomes [9-12]. Interventions consisting of psychoeducation, counselling, and skill improvement applications were shown to be beneficial in enhancing coping skills, self-care behaviours, and improving cancer control skills [13]. Techniques such as deep breathing exercises have also been observed to reduce stress and improve emotional stability [14]. Scientific observations indicate that caregivers of post-mastectomy breast cancer patients cater to stressful demands that corrode the quality of their lives [15,16]. This highlights the need for targeted interventions to address each stressor and ways to enhance corresponding coping techniques.

Regardless of these findings, there remains a sizable gap in literature concerning the effects of evidence-based psychosocial interventions, particularly regarding caregivers who support breast cancer patients. The majority of these studies focus primarily on patient outcomes, with restrained emphasis on caregiver well-being

[17,18]. Moreover, there is a lack of studies analysing the benefits of a mixed approach that combines counselling with effective stress management strategies. In light of this, the objectives of the prevailing study were to evaluate the levels of stress and coping techniques among primary caregivers of post-mastectomy breast cancer patients, and to assess the effectiveness of combined psychosocial interventions like counselling and diaphragmatic respiratory therapy on the levels of stress in them. The present study also aims to bridge the gap between existing studies and the need to address the effect of interventions on stress and coping strategies, with emphasis on the well-being of caregivers.

The current manuscript is part of a larger study. The CTRI registration included four variables: caregiver burden, stress, quality of life, and coping strategies, which were split into two studies, addressing distinct aspects of caregiving.

MATERIALS AND METHODS

The present quasi-experimental study was designed in the medical oncology department of a tertiary care cancer hospital in central Kerala to be undertaken from May 5, 2023, to December 12, 2024. Approval from The Central Ethics Committee (NU/CEC/2022/318) and the Institutional Ethics Committee (Ref. No.17/EC/22/AIMS-77) were obtained. The study was registered under CTRI, and its registered number is CTRI/2022/03/040924 http://digil.ink/l/11314Gh7hlX.

Inclusion criteria: Primary caregivers aged >18 and <65 years of both sexes who can provide informed consent to participate in the study. Primary caregivers of patients who have undergone a mastectomy and are receiving chemotherapy. Primary caregivers who can give consent to participate in the study.

Exclusion criteria: Paid, professional, or formal caregivers, patients who developed post-mastectomy complications such as lymphoedema, Caregivers with profound hearing loss, speech impairments and pre-existing major psychiatric disorder based on the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) criteria.

Sample size calculation: The consecutive sampling technique was used. Baseline data from 179 patients with breast cancer and their primary caregivers were collected.

The sample size was calculated using the formula:

$$n=\frac{2sp^2\ (Z_{1\text{-}\alpha/2}+Z_{1\text{-}\beta})^2}{\mu d^2}$$

$$Sp^2=\frac{S_1{}^2+S_2{}^2}{2}\ \frac{17.30^2+12.93^2=466.18}{2}\ \frac{}{2}=233.09$$

$$n=\frac{z\ (233.09)^2\ (1.96+0.84)^2}{6.89^2}\ \frac{=466.18\times7.84}{47.47}=76.99$$

- S_1=Standard deviation of the first group was 17.30 [19];
- S_2= Standard deviation of the second group was 12.93;
- μd= Mean difference between the samples (66.66-59.77) 6.8;
- $Z1\text{-}\alpha/2=1.96$ for 95% confidence level;
- $Z1\text{-}\beta=0.84$ for 80% power.

Each group needed a minimum sample size of 77. Hence, the total sample size was 154. The researcher allocated 77 participants to the control group and 77 to the intervention group. Caregivers of breast cancer patients who seek treatment in alternative months were assigned to the control group and the experimental group to avoid bias. This helped keep the study's internal validity strong. It also made it easier to manage the intervention and time of data collection properly.

Study Procedure

The investigator established rapport with participants during the first visit and upon admission for chemotherapy. After a brief introduction, the sociodemographic variables and clinical data were collected. During the second visit after three weeks, the caregivers' pre-test scores were taken, and their stress levels and coping strategies were assessed with the help of a questionnaire, which also confirmed if the participants had an external support system outside the family, like friends, mentors and other well-wishers who offered financial, social or interpersonal or physical support. After the pre-test, an individual multimodal intervention program was provided to the experimental group. During the third visit (after 6 weeks), the first post-test was conducted using the same questionnaire, and reinforcement was provided. The fourth visit (after 9 weeks) was exclusively for reinforcement. The second post-test was conducted during the fifth visit (after 12 weeks). The control group received routine care during the study and was administered the intervention after the second post-test. Data were collected from the control group and experimental group in alternative months to minimise intermingling and resultant bias or inaccurate reporting of factors that are being studied.

Study instruments: A structured questionnaire was used to assess demographic traits. The Kingston Caregiver Stress Scale (KCSS) was used to measure the level of stress among caregivers. The scale comprises 10 items: including seven items related to caregiving responsibilities, two items addressing family-related concerns, and one item focusing on financial aspects. Each item is rated on a scale ranging from one (indicating no stress) to five (indicating extreme stress) [20]. With a reliability score of 0.798, the KCSS indicates that its items are highly consistent. For the purpose of interpretation, the scores were categorised as low stress (10-23), moderate stress (24-36) and high stress (37-50).

Participants' coping techniques were evaluated using a modified Brief Coping Orientation to Problems Experienced (COPE) scale. The scale has 28 items and 14 domains (2 items per category). The score range was 28 to 112. The domains were divided into three categories: ineffective coping, emotion-centred coping, and problem-oriented coping. Ineffective coping includes venting, ignoring, blaming ourselves, avoidance and substance use. Emotion-centred coping includes acceptance, positive reframing, emotional support, humour, and faith. Problem-oriented coping includes planning, active coping, and using instrumental support [21]. The ranges are as follows: poor coping, 28-56; average coping, 57-84; and good coping, 85-112 [22]. A satisfactory degree of consistency among the items on the Brief COPE Scale was indicated by its reliability score of 0.731.

Interventions: The interventions were administered after the pre-test. The participants were introduced to diaphragmatic breathing exercises. The investigator demonstrated and explained the exercises and also presented a prerecorded video about pursed lip breathing exercises. Other relevant instructions and questions were answered. This session lasted 10 minutes. The investigator, who is formally trained in counselling, conducted 15-minute sessions tailored to each participant's needs: covering assessment, trust-building, need assessment, coping strategies, self-care promotion, disease education, and emotional support. The total time spent on these interventions was 25 minutes. The same questionnaire was administered at various intervals: first post-test (3rd cycle), 6th week, 9th week (with reinforcements), and 12th week (second post-test) [Table/Fig-1]. Caregivers were encouraged to practise deep breathing exercises with reminders and guidance to reduce stress and anxiety. Phone follow-ups by the investigator and daily journals maintained by the participants helped track their progress.

STATISTICAL ANALYSIS

The data were imported into an excel worksheet and analysed using SPSS, version 23. The findings of the category measures are presented as numbers and percentages. Frequencies and percentages were used for categorical data. The Shapiro-Wilk test was used to evaluate the normality of the numerical variables.

Fisher's exact or Chi-square tests were used to analyse categorical variables. The levels of stress and coping strategies among the participants in the experimental and control groups were compared using the student t-test. Repeated-measures analysis of variance was used to evaluate the mean difference in outcomes between the experimental and control groups. Statistical significance was set at $p<0.05$. Contamination was minimised through a bifurcated data collected process where the experimental group and control groups were interviewed separately.

RESULTS

The outline shows the frequency of the administration of interventions in reference to both modalities, duration, and frequency of visits [Table/Fig-1].

In the study, 23 (29.9%) and 28 (36.4%) of the 154 participants were aged 54-65 in the control and experimental groups, respectively. The mean age was 46.06±12.587. There was no discernible difference between the two groups in other demographic factors [Table/Fig-2].

According to [Table/Fig-3], in the experimental group, 46 (59.7%) participants experienced moderate stress, and 3 (3.9%) reported high stress; in the control group, 42 (54.5%) reported moderate stress, and 2 (2.6%) high stress. The p-value was 0.672 and the Chi-square value was 0.792, both indicating no statistical significance.

According to [Table/Fig-4], in the experimental group, 65 (84.4%) subjects had average coping strategies, and 8 (10.4%) had good coping strategies. In the control group, 68 (88.3%) had average coping strategies, and 6 (7.8%) demonstrated good coping strategies. The p-value of 0.780 indicates no statistical significance.

Type of interventions	Duration	Interventions per week				
		1st visit on admission	2nd visit (after 3rd weeks)	3rd visit (after 6th weeks)	4th visit (after 9th weeks)	5th visit (after 12th weeks)
Diaphragmatic breathing exercises	10 minutes per day	Good rapport. Collect consent after explanation.	After the Pre-test. Intervention was given individually.	After 1st post-test, Reinforcement was given along with data collection	Only reinforcement was given to the participants	2nd post-test. After the 2nd post-test Intervention was administered on the control group as well
Counselling	15 minutes every visit					

[Table/Fig-1]: Frequency of psychosocial interventions.

S. no.	Demographic variables	Control group-77	Experimental Group-77	Chi-square/Fisher-exact* test	p-value
		Frequency (%)	Frequency (%)		
1.	**Age (years) of caregivers**				
	18-29	9 (11.7)	10 (12.9)	3.041	0.385
	30-41	22 (28.5)	13 (16.9)		
	42-53	23 (29.9)	26 (33.7)		
	54-65	23 (29.9)	28 (36.4)		
2.	**Gender**				
	Male	32 (41.56)	34 (44.15)	0.066	0.798
	Female	45 (58.44)	43 (55.85)		
3.	**Residence**				
	Panchayat	55 (71.5)	56 (72.7)	2.82	0.244
	Municipal corporation	15 (19.5)	9 (11.7)		
	Municipality	7 (9.0)	12 (15.6)		
4.	**Marital status**				
	Married	65 (84.4)	66 (85.7)	2.05	0.56
	Unmarried	11 (14.3)	10 (12.9)		
	Widowed	1 (1.3)	0 (0)		
	Separated/Divorced	0 (0)	1 (1.3)		
5.	**Educational status**				
	Illiterate	2 (2.5)	2 (2.5)	5.81*	0.214
	Primary education	17 (22.0)	13 (16.9)		
	Secondary education	23 (29.9)	19 (24.7)		
	Tertiary education	27 (38.0)	40 (52.0)		
	Degree in healthcare	8 (10.4)	3 (3.9)		
6.	**Type of the family**				
	Nuclear family	63 (81.8)	70 (90.9)	2.70	0.10
	Joint family	14 (18.2)	07 (9.1)		
7.	**Socioeconomic status**				
	Above poverty line	20 (25.9)	15 (19.5)	0.924	0.336
	Below poverty line	57 (74.1)	62 (80.5)		
8.	**Relationship with the patient**				
	Spouse	27 (35.0)	33 (43.0)	5.28*	0.259
	Son	5 (6.4)	1 (1.3)		
	Daughter/Sister	28 (36.3)	24 (31)		
	Mother	13 (16.8)	12 (15.6)		
	Second-degree relatives	4 (5.1)	7 (9.0)		

9.	**Nature of occupation of the participant**				
	Full time	13 (16.8)	9 (11.7)	1.36*	0.85
	Part-time	27 (35.0)	29 (37.7)		
	Household	17 (22.0)	15 (19.5)		
	Student	2 (2.5)	3 (3.8)		
	Others	18 (23.7)	21 (27.3)		
10.	**Support system other than the family**				
	No	29 (37.7)	23 (29.9)	1.04	0.307
	Yes	48 (62.3)	54 (70.1)		
11.	**If yes**				
	Financial	46 (59.7)	47 (61)	3.9*	0.262
	Social	0	1 (1.3)		
	Person	1 (1.3)	1 (1.3)		
	Domestic	1 (1.3)	5 (6)		
12.	**Wage loss due to caregiving**				
	Yes	33 (42.9)	22 (28.6)	3.42	0.064
	No	44 (57.1)	55 (71.4)		
13.	**Type of illness in the patient**				
	Cardiac disorder	17 (22.1)	12 (15.6)	7.6*	0.06
	Renal disorder	0	2 (2.6)		
	CNS	6 (7.8)	1 (1.3)		
	Others specify	24 (31.2)	23 (29.9)		
	Nil	30 (38.9)	39 (50.6)		
14.	**Co-morbidities in the participant**				
	CVS system	3 (3.9)	3 (3.9)	4.88*	0.552
	Respiratory system	1 (1.2)	3 (3.9)		
	Endocrine system	17 (22)	14(18.7)		
	Musculoskeletal system	4 (5.1)	2 (2.5)		
	Nervous system	0	2 (2.5)		
	Renal system	_	-		
	GI system	_	-		
	Combined system	11 (14.3)	10 (12.8)		
	No co-morbidities	41 (53.3)	43 (55.7)		

[Table/Fig-2]: Distribution of the subjects according to their sociodemographic characteristics and clinical data.

Kingston Caregiver Stress Scale (KCSS) (caregiver stress)	Experimental group-77	Control group 77
	Frequency %	Frequency %
Low stress (10-23)	28 (36.4)	33 (42.9)
Moderate stress (24-36)	46 (59.7)	42 (54.5)
High stress (37-50)	03 (3.9)	2 (2.6)
Mean±SD	26.01± 5.14	25.23±4.59
Fisher's-exact test	0.792	
p-value	p=0.672	

[Table/Fig-3]: Levels of caregiver stress among the participants (pre-test).

Modified brief cope scale (Coping strategies)	Experimental group-77	Control group 77
	Frequency (%)	Frequency (%)
Poor coping (28-56)	4 (5.2)	3 (3.9)
Average coping (57-84)	65 (84.4)	68 (88.3)
Good coping (85-112)	8 (10.4)	6 (7.9)
Mean±SD	72.55 ±9.08	71.74± 8.82
Fisher's exact test.	0.498	
p-value	p=0.780	

[Table/Fig-4]: Levels of coping strategies among the subjects (pre-test).

According to the [Table/Fig-5], the mean scores of the experimental group were 26.01±5.14 (p=0.323) on the pre-test, 23.91±5.024 on the first post-test (p=0.38) and 21.74±3.91 on the second post-test (p=0.005). The mean scores of the control group were 25.23±4.59, 25.52±4.5, and 23.78±4.81, respectively. The stress levels in the experimental group showed a significant reduction in the second post-test, indicating statistical significance. To assess the normality of the data, the Shapiro-Wilk test was performed, and it was found that the data followed normality hence, the Student's t-test was used to determine the difference between the experimental and control groups.

Variables	Time	Groups	The mean std. deviation score of the caregiver's stress. Median (IQR)	(Student T-test)	p-value
Stress level	Pre-test	Control	25.23±4.59, 25 (7)	(0.991)	0.323
		Experiment	26.01±5.14, 26 (7)		
	First post	Control	25.52±4.50, 25 (6)	(2.09)	0.038*
		Experiment	23.91±5.024, 24 (7)		
	Second post	Control	23.78±4.81, 24 (7)	(2.883)	0.005**
		Experiment	21.74±3.91, 22 (6)		

[Table/Fig-5]: Comparison of stress levels between the experimental and control groups at different time points.
Note: p≤0.05 was considered statistically significant

According to the [Table/Fig-6], the mean scores of the experimental groups were 72.55±9.08 (p=0.578) on the pre-test, 76.52±10.27 on the first post-test (p=0.005), and 77.09±9.78 on the second post-test (p=0.001); the mean scores of the control group were 71.74±8.82, 72.08±8.842, 68.73±9.09, respectively. The levels of coping strategies in the experimental group showed a significant improvement in both post-tests.

Variables	Time	Groups	The mean std. deviation score of the coping strategies of caregivers, Median (IQR)	(Student T-test)	p-value
Coping Strategies of the Participants	Pre-test	Control	71.74±8.82, 71 (12.5)	(0.558)	0.578
		Experiment	72.55±9.08, 73 (10)		
	First post	Control	72.08±8.842, 72 (11)	(2.87)	0.005*
		Experiment	76.52±10.27, 75 (15.5)		
	Second post	Control	68.73±9.09, 68 (13)	(5.49)	0.001*
		Experiment	77.09±9.78, 79 (13.5)		

[Table/Fig-6]: Comparison of coping strategies between experimental and control groups at different time points.
Note: p≤0.05 was considered statistically significant

Evaluate the effectiveness of the interventions on the levels of caregiver stress among the participants [Table/Fig-7]. The experimental group showed a significant reduction in stress, with a mean difference of -2.104 (p=0.047*) from pre-test to first post-test and 4.273 (p<0.001) from pre-test to second post-test. In contrast, the control group also showed significant changes between first and second post-test. The Repeated Measures Analysis of Variance (RM ANOVA) results indicate significant improvement in the experimental group across both post-tests, pointing to the effectiveness of the intervention.

(I) Factor1	(J) Factor1	Control		Experimental	
		Mean difference of caregiver Stress (I-J)	p-value (RM ANOVA)	Mean difference of caregiver Stress (I-J)	p-value (RM ANOVA)
Pre-test	First post	-0.286	1.000	2.104	0.047*
	Second post	1.766	0.077	4.273	<0.001***
First post-test	Pre-test	0.286	1.000	-2.104	0.047*
	Second post	2.052	0.014*	2.169	0.004**
Second post-test	Pre-test	-1.766	0.077	-4.273	<0.001***
	First post-test	-2.052	0.014*	-2.169	0.004**

[Table/Fig-7]: Intragroup comparison of caregiver stress in control & experimental at different time points.

[Table/Fig-8] assesses the effectiveness of the interventions on the coping strategies of the participants. The experimental group showed a significant improvement, with a mean difference of 3.974 (p=0.046*) from pre-test to first post-test and -4.545 (p=0.014) from pre-test to second post-test. In contrast, the control group also showed significant changes, (p=0.008) between first and second post-test. The RM ANOVA results indicate significant improvements in the experimental groups, suggesting the effectiveness of the interventions in enhancing coping strategies.

(I) Factor1	(J) Factor1	Control		Experimental	
		Mean difference of caregiver coping strategies (I-J)	p-value (RM ANOVA)	Mean difference of Caregiver Coping Strategies (I-J)	p-value (RM ANOVA)
Pre-test	First post	-1.247	1.000	-3.974	0.046*
	Second post	3.013	0.086	-4.545	0.014*
First post-test	Pre-test	1.247	1.000	3.974	0.046*
	Second post	4.260	0.008	-0.571	1.000
Second post-test	Pre-test	-3.013	0.086	4.545	0.014*
	First post-test	-4.260	0.008	0.571	1.000

[Table/Fig-8]: Intragroup comparison of caregiver coping strategies in control & experimental at different time points.

The study found significant differences in coping strategies and stress levels among the participants in the experimental group. The findings also help in understanding the relationship between patient variables and caregiver outcomes.

DISCUSSION

The present study aims to understand how effective psychosocial intervention is at reducing stress in caregivers of breast cancer patients and improving their coping skills. The result showed a clear difference in stress levels and coping in the experimental group for caregivers. Since the interventions were implemented as a bundle that included both counselling and diaphragmatic breathing exercises, it was challenging to determine which element worked best alone. Other studies, conducted by Akpan-Idiok PA et al., and Sharma D et al., revealed that caregivers indicated the coping strategies used were effective [23,24]. These results were similar to those of studies conducted by Antony S et al., which revealed that 70% of caretakers had average coping skills [25].

The mean stress in the experimental group of the current study decreased from baseline (26.01) to 21.74 by the 12-week follow-up. According to a similar study conducted by Titler MG et al., the levels of stress decreased after mindfulness training from 20.86 to 18.58 [26] and another study by Al Kindi QA et al., found that 31.3% of participants had only mild stress, 36.3% had moderate stress, and only 8.3% had severe stress, while a small minority of them (1.4%) reported extremely severe stress [27]. A study by Poudel A et al., reported that 56.5% of the 138 participants had mild stress, followed by moderate stress (26.1%) and severe stress (0.7%) [28].

The majority of the participants of this study were women, which aligns with the findings of prior research by Gabriel IO et al., who reported that the majority of the participants were women [29]. A similar study reported by Saini S et al., showed that the majority of caregivers lived in nuclear families (42.1%) [3] which is consistent with the findings of this study. The current study showed that the majority of caregivers in both the control and experimental groups were married, 65 (84.4%) and 66 (85.7%) of them, respectively, which is consistent with a study conducted by Mirshahi A et al. which reported that most caregivers were married, with 29 (96.7%) and 26 (86.7%), respectively. Another study conducted by Tkatch R et al., also showed that a majority of the caregivers were married (83%) [30,31].

While the current study assessed the effectiveness of psychosocial interventions like deep breathing techniques and therapeutic counselling in reducing caregiver stress, a comparable study conducted by Anghel T et al., found that psychotherapeutic interventions, particularly individual meaning-centred psychotherapy, mindfulness-based cognitive therapy, and supportive-expressive group therapy, are essential in oncological care due to their ability to reduce distress [32].

The present research focuses on the well-being of caregivers as opposed to exclusively studying caregiver outcomes, specifically in the domain of post-mastectomy care for breast cancer patients. The researcher adopted a multimodal approach to study the variables and customised the interventions to align their features with the psychosocial needs of the participants.

Limitation(s)

Data were collected from the two groups separately to prevent contamination, but the researcher could not prevent any incidental socialising that may have occurred between the two groups during hospital visits. Potential bias due to information exchange during such interactions cannot be ruled out. While statistical significance was established, the researcher could not measure the individual effectiveness of each intervention.

CONCLUSION(S)

Psychosocial intervention programs like diaphragmatic breathing techniques and counselling were observed to be effective in alleviating stress and enhancing the coping strategies among primary caregivers of breast cancer patients who underwent mastectomy. In future, studies should be conducted on a larger scale and repeated in different settings. The study can also be conducted with other types of cancer caregivers.

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