The International Journal of Indian Psychology
ISSN 2348-5396 (e) | ISSN: 2349-3429 (p)
Volume 6, Issue 4, DIP: 18.01.088/20180604
DOI: 10.25215/0604.088
http://www.ijip.in | October-December, 2018

The International Journal of INDIAN PSYCHOLOGY

Research Paper

Adjuvant Psychological Therapy for Alexithymia in Women with Breast Cancer

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ABSTRACT

Many psychological factors play an important role in diagnosis and treatment of cancer. One of the reasons could be due to deficits in emotional processing and affect regulation. These deficits could lead to an inability to verbalize and identify emotions which is known as alexithymia. To this end the objective of the study was to examine the effectiveness of adjuvant psychological therapy in breast cancer in terms of alexithymia (within the intervention group and between the two groups). The study consisted of 20 patients in the intervention and control groups each. They were administered the following scale namely, Toronto Alexithymia Scale (TAS-20). Results indicated that between the intervention and control groups, on total alexithymia, difficulty describing feelings and externally oriented thinking there was a statistically significant difference between the intervention and control groups. On the subscale of difficulty identifying feelings there were no statistically significant differences between the two groups. Within the intervention group too, significant differences were found on alexithymia and subscales both, following therapy and at follow up. This study reveals the effectiveness of psychological interventions in those with breast cancer. It is imperative that psychological care is the need of the hour in oncology settings.

Keywords: *Alexithymia, Adjuvant Psychological Therapy, Difficulty Identifying Feelings Difficulty Describing Feelings, Externally Oriented Thinking.*

A host of psychological factors such as sadness, fear and anger characterize people with cancer. Psychologically, they face a life-threatening disease and the impact of surgery, chemotherapy, radiotherapy or endocrine therapy. Fluctuations of emotions is common ranging from hope to feel better and fear of the unknown which is worsened by pre-existing psychological disorders (Griffen & Fentiman, 2002). The negative effects of breast cancer treatment can be long lasting as supported by findings that regardless of improved physical functioning, continual psychological distress can be evident a year following diagnosis (Pinto, Clark, Maruyama, & Feder, 2003). The underlying psychological cause could be a deficit in emotional processing and affect regulation. This could lead to an inability in verbalizing and identifying feelings which is known as alexithymia.

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Received: November 22, 2018; Revision Received: December 19, 2018; Accepted: December 26, 2018

The construct of 'alexithymia' was originally conceptualized by Nemiah, Freyberger, and Sifneos (1976) as encompassing a cluster of cognitive traits including difficulty identifying feelings, difficulty describing feelings to others, externally oriented thinking, and a limited imaginal capacity. Apart from this alexithymia is also known to be a global impairment in emotional processing resulting in limited emotional expression and recognition (Lane, Sechrest, Riedel, Shapiro, & Kasziak, 2000). Yet what is common in these views is that alexithymia is a deficit, inability, or deficiency in emotional processing rather than a defensive process, and this deficit view is gaining increasing support from basic laboratory research. Alexithymia is hypothesized to be one of several factors that contribute to various physical and mental health problems, including undifferentiated negative moods such as depression and anxiety, compulsive or addictive behaviors, heightened or prolonged physiological arousal, physical symptoms, and potentially somatic disease (Taylor, Bagby, & Parker, 1997).

Given the need to study the above mentioned psychological variable the objective of the study was to examine the efficacy of adjuvant psychological therapy in breast cancer in terms of alexithymia (within the intervention group and between the two groups).

MATERIALS AND METHODS

Study Design

The design followed was a quasi experimental, pre and post design with control design.

Hypotheses

The study had two hypotheses namely:

1. The hypothesis stated that there will be a significant difference among women with breast cancer in the intervention group as compared to the control group on alexithymia, difficulty identifying feelings, difficulty describing feelings and externally oriented thinking.
2. There will be significant differences in pre, post and follow up scores in alexithymia, difficulty identifying feelings, difficulty describing feelings and externally oriented thinking following intervention

Tools

Toronto Alexithymia Scale (TAS-20)

Alexithymia was assessed using Toronto Alexithymia Scale(TAS-20) by Parker, Taylor, and Bagby (2003). This scale consists of 20 items on a 5-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). This sub domains in this scale are: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF) and externally oriented thinking (EOT) and total score. Psychometric properties on TAS-20 have shown to have good internal consistency (Cronbach's alpha = 0.81) and test re-test reliability ($r=0.77$; $p<0.01$) over a 3-week period.

Adjuvant Psychological Therapy (APT)

APT by Moorey and Greer (1989) (as cited in Moorey, Greer, Bliss, & Law, 1998) is a structured, cognitive behaviour therapy for individual patients lasting for 6 sessions 45 minutes each. The therapy comprised of identifying negative automatic thoughts, challenging of cognitions and substituting negative thoughts by adaptive responses, activities of mastery and pleasure and relaxation exercises. Expression of feelings and reflection was a part of the therapy.

Inclusion Criteria

Women with breast cancer in stages I, II and III were chosen.
Women stable after surgery
Women who were married
Women who could give informed consent.
Women with breast cancer with minimum 5th standard education.
Women with breast cancer who could read and write Kannada, Hindi or English.

Exclusion Criteria

Primary psychiatric diagnosis.
Women with breast cancer who have had an indication of organic brain disorder (this was ruled out by the treating doctor).
Patients with other major medical illnesses.

Procedure

A total of 119 patients were referred by the treating oncologist and nursing staff. Out of those referred, 56 of them fulfilled the criteria. Among the 56, 16 of them did not give consent and therefore 40 of them were sequentially allocated to the intervention and control group (20 each). A total of 40 patients filled the pre and post test measures. The intervention group received therapy for 6 sessions. The control group was assessed at pre test and a gap of 4 weeks was given before post assessment was done. The intervention group alone was followed up. Follow up was done after 6 months following therapy.

Ethical committee clearance was obtained from the hospital where the sample was collected.

RESULTS

Alexithymia between Intervention and Control Group

Table 1. Means and Standard Deviations of Total Alexithymia, Difficulty Identifying Feelings, Difficulty Describing Feelings and Externally Oriented Thinking in the Intervention and Control Groups

	Intervention Group		**Control Group**	
	M	**SD**	**M**	**SD**
Total Alexithymia	42.15	8.24	50.05	8.89
Difficulty Identifying Feelings	13.35	4.17	15.85	5.09
Difficulty Describing Feelings	9.75	3.54	12.15	3.44
Externally Oriented Thinking	18.90	3.52	22.30	5.01

On total alexithymia scores, the mean scores of intervention and control groups were 42.15 (SD=8.24) and 50.05 (SD=8.89) respectively. On difficulty identifying feelings, the mean scores were 13.35 (SD=4.17) and 15.85 (5.09) in the intervention and control group respectively. In the domain of difficulty describing feelings, the mean scores of intervention and control group were 9.75 (SD=3.54) and 12.15 (SD=3.44) respectively. On externally oriented thinking, the mean scores were 18.90 (SD=3.52) and 22.30 (SD=5.01) respectively.

Table 2. Analysis of Covariance for Intervention and Control Groups on Total Alexithymia with Pre Test Scores as Covariate

	df	SS	MS	F	p	η^2
Covariate	1	352.60	352.60	5.35	0.03	0.24
Group	1	757.16	757.16	11.49**	0.00	
Error	37	2438.90	65.92			
Total	39	3415.60				

Note.df= Degrees of freedom; SS= Sum of squares; MS= Mean Square
**F- value is significant at 0.01 level (2=tailed)[p<0.01]

The hypothesis stated that there will be a significant difference among women with breast cancer in the intervention group as compared to the control group on alexithymia. The results supported this hypothesis. On ANCOVA, there was a statistically significant difference between the groups (F (20,20)= 11.49,η^2=0.24). The mean scores of the intervention and control group were 42.15 (SD=8.24) and 50.05 (SD=8.89) respectively.

Table 3. Analysis of Covariance for Intervention and Control Groups on Difficulty Identifying Feelings with Pre Test Scores as Covariate

	df	SS	MS	F	p	η^2
Covariate	1	165.36	165.36	9.30	0.00	0.10
Group	1	75.22	75.22	4.32	0.05	
Error	37	657.74	17.78			
Total	39	885.60				

Note.df= Degrees of freedom; SS= Sum of squares; MS= Mean Square

The hypothesis stated that there will be a significant difference among women with breast cancer in the intervention group as compared to the control group on difficulty identifying feelings. The results did not support this hypothesis. On ANCOVA, there was no statistically significant difference between the groups (F (20,20)= 4.32, η^2=0.10). The mean scores of the intervention and control group were 13.35(SD=4.17) and 15.85 (SD=5.09) respectively.

Table 4. Analysis of Covariance for Intervention and Control Groups on Difficulty Describing Feelings With Pre Test Scores as Covariate

	df	SS	MS	F	p	η^2
Covariate	1	66.57	66.57	6.22	0.02	0.18
Group	1	86.91	86.91	8.13**	0.01	
Error	37	395.73	10.70			
Total	39	519.90				

Note.df= Degrees of freedom; SS= Sum of squares; MS= Mean Square
**F-value is significant at 0.01 level (2-tailed) [p<0.01]

The hypothesis stated that there will be a significant difference among women with breast cancer in the intervention group as compared to the control group on difficulty describing feelings. The results supported this hypothesis. On ANCOVA, there was a statistically significant difference between the groups (F (20)=8.13, η^2=0.18). The mean scores of the intervention and control group were 9.75 (SD=3.54) and 12.15 (SD=3.44) respectively.

Table 5. Analysis of Covariance of Intervention and Control Groups on Externally Oriented Thinking with Pre Test Scores of Externally Oriented Thinking

	df	SS	MS	F	p	η^2
Covariate	1	139.20	139.20	8.99	0.00	0.17
Group	1	117.19	117.19	7.57**	0.01	
Error	37	572.80	15.48			
Total	39	827.60				

Note.df= Degrees of freedom; SS= Sum of squares; MS= Mean Square
** F-value is significant at 0.01 level (2-tailed)[p<0.01]

The hypothesis stated that there will be a significant difference among women with breast cancer in the intervention group as compared to the control group on externally oriented thinking. The results supported this hypothesis. On ANCOVA, there was a statistically significant difference between the groups (F (20,20)= 7.75, η^2=0.17). The mean scores of the intervention and control group were18.90 (SD=3.52) and 22.30 (SD=5.00) respectively.

Alexithymia in Intervention Group

Table 6: Mean and Standard Deviations of Alexithymia, Difficulty Identifying Feelings, Difficulty Describing Feelings and Externally Oriented Thinking in the Intervention Group

	Pre		Post		Follow-up	
	M	SD	M	SD	M	SD
Alexithymia	56.50	11.48	43.05	8.08	38.83	11.60
DifficultyIdentifying Feelings	19.27	6.61	13.72	4.11	12.50	5.18
Difficulty Describing Feelings	14.67	4.07	9.89	3.51	10.67	8.70
Externally Oriented Thinking	22.33	4.54	19.28	3.41	16.22	2.71

The mean scores of alexithymia total in pre test, post test and follow up scores were 56.50 (SD=11.48), 43.05(SD=8.08) and 38.83(SD=11.60) respectively. The mean scores of difficulty identifying feelings in pre test, post test and follow up were 19.27 (SD=6.61), 13.72 (SD=4.11) and 12.50 (SD=5.18) respectively. On difficulty describing feelings, the mean scores on pre test, post test and follow up were 14.67(SD=4.07), 9.89 (SD=3.51) and 10.67 (SD=8.70) respectively. On externally oriented thinking, mean scores were 22.33 (SD=4.54), 19.28 (SD=3.41) and 16.22 (SD=2.71) on pre, post and follow up respectively.

Table 7.Repeated Measures- Analysis of Variance of Alexithymia

Alexithymia	df	SS	MS	F	Sig	η^2
Greenhouse Geisser	1.64	3064.19	1872.70	30.39**	0.00	0.64

Note. df = Degrees of freedom; SS = Sum of squares; MS = Mean square; Sig = Significance
**F-value is significant at 0.0005 level (2-tailed)[p<0.0005]

The hypothesis stated that there will be significant difference in pre, post and follow up scores in alexithymia among women with breast cancer following intervention. The results supported this hypothesis. A repeated measures ANOVA with a Greenhouse Geisser correction determined that alexithymia-total differed statistically between the three time points (F (1.64)=30.39, p<0.005, η^2 =0.64). Post hoc tests using Bonferroni correction

revealed that therapy from pre test to post test and up to follow up (M=56.50, SD=11.48 vs M=43.05, SD=8.08 vs M=38.83, SD=11.60 respectively) was statistically significant from pre test to post test (p=0.00) and from pre test to follow-up (p=0.00). However, there was no statistically significant difference from post test to follow test (p=0.48).

Table 8. Repeated Measures-Analysis of Variance of Difficulty Identifying Feelings

DIF	df	SS	MS	F	Sig	η^2
Greenhouse Geisser	1.984	469.79	236.83	16.84**	0.00	0.50

Note. DIF = Difficulty Identifying Feelings; df = Degrees of freedom; SS = Sum of squares; MS = Mean square
**F-value is significant at 0.0005 level (2-tailed) [p<0.0005]

The hypothesis stated that there will be significant differences in pre, post and follow-up scores in difficulty identifying feelings among women with breast cancer following intervention. The results supported this hypothesis. A repeated measures ANOVA with a Greenhouse Geisser correction determined that mean of difficulty identifying feelings differed statistically between the three time points (F (1.984)=16.84, p<0.005, η^2=0.50). Post hoc tests using Bonferroni correction revealed that therapy from pre to post to follow-up (M=19.27,SD=6.61 vs M=13.27, SD=4.11 vs M=12.50, SD=5.18, respectively) was statistically significant from pre test to post test (p=0.00) and from pre test to follow up(p=0.00). However, there was no statistically significant difference from post test to follow-up (p=0.98).

Table 9. Repeated Measures- Analysis of Variance of Difficulty Describing Feelings

DDF	df	SS	MS	F	Sig	η^2
Greenhouse Geisser	1.31	236.59	180.59	4.66*	0.03	0.22

Note. DDF = Difficulty Describing Feelings; df = Degrees of freedom; SS = Sum of squares; MS = Mean square
**F-value is significant at 0.05 level (2-tailed) [p<0.05]

The hypothesis stated that there will be significant differences in pre, post and follow-up scores in difficulty describing feelings among women with breast cancer following intervention. The results supported this hypothesis. A repeated measures ANOVA with a Greenhouse Geisser correction determined that mean of difficulty describing feelings differed statistically between the three time points (F (1.31)=4.66, p<0.05, η^2=0.22). Post hoc tests using Bonferroni correction revealed that therapy from pre to post to follow-up (M=14.67, SD=4.07 vs M=9.89, SD=3.51 vs M=10.67, SD=8.70, respectively) was statistically significant from pre test to post test (p=0.00). However, there were no statistically significant differences from pre test to follow up (p=0.17) and post test to follow-up (p=1.00).

Table 10.Friedman's Two-Way Analysis of Variance between Pre Test, Post Test and Follow-Up on EOT

	Pre			Post			F/U			χ^2
	M	SD	Mean Rank	M	SD	Mean Rank	M	SD	Mean Rank	
EOT	22.33	4.54	19.28	19.28	3.41	2.71	16.22	2.71	1.31	17.03**

Note. EOT= Externally Oriented Thinking; Pre= Pre Test; Post= Post Test; F/U= Follow-Up
**χ^2-value is significant at 0.01(2-tailed)[p<0.01]

The hypothesis stated that there will be significant differences in pre, post and follow up scores in difficulty describing feelings and externally oriented thinking among women with breast cancer following intervention. Friedman's Two-Way Analysis of Variance was done as this variable was not normally distributed on test of normality. The results supported this hypothesis. On the Friedman's Two-Way Analysis of Variance Test, it was found that there were statistically significant differences from pre test to post test to follow up on externally oriented thinking (χ^2 (18)=17.03, p<0.01). The Kendall's Co-efficient of Concordance was W =0.47 for externally oriented thinking.

On the post hoc test it was found that on Externally Oriented Thinking, there was a statistically significant difference from pre test to follow-up (Z(18)=4.00, p<0.05). There were no statistically significant differences from post test to follow up and from pre test to post test.

DISCUSSION

Alexithymia between Intervention and Control Group

The objectives of the study wereto examine the efficacy of adjuvant psychological therapy among women with breast cancer in terms of alexithymia.

Between the intervention and control group, the hypothesis stated that there will be a significant difference in the intervention group as compared to the control groups on alexithymia. In the present study on the total scores of alexithymia and the subscales of difficulty describing feelings and externally oriented thinking, there was a statistically significant difference between the two groups. No statistically significant difference was present on difficulty identifying feelings.

There could be different reasons for the statistically significant results. During a brief screening before the study, an effort was made so that the groups do not go through any form of therapy. So, the control group did not go through any form of counselling or therapy to notice changes in the post test scores. But since the intervention group did go through six sessions of therapy, the effectiveness of therapy was statistically present. Adjuvant psychological therapy is tailor made and apart from increasing an ability to verbalise feelings, crucial issues that were discussed were thoughts about recurrence, side effects of chemotherapy, the role of re appraisal and de-catastrophizing physical sensations. Although statistically no changes were present on difficulty identifying feelings, intervention group had lower mean scores on descriptive statistics.

To highlight few studies which found a preponderance of alexithymia has been found in women with breast cancer as compared to controls (without intervention). Manna et al. (2007) and Servaes, Vingerhoets, Vreugdenhil, Keuning, and Broekhuijsen (1999).(using the same scale as what was used in this research) and found that those with breast cancer had higher alexithymia as compared to the control group. Studies which have compared intervention and control group studies and revealed significant differences are by Porcelli, Tulipani, Micco, Spedicato, and Maeillo (2011) and Tulipani et al.(2010).

Alexithymia in Intervention Group

The hypothesis stated that there will be a significant reduction in alexithymia among women in breast cancer following intervention. In the present study, it was found that there was a statistically significant difference in the total scores and in difficulty identifying, describing feelings and externally oriented thinking following intervention.

Some specific aspects of therapy could have helped reduce alexithymia. Therapy per se addressed ventilation of feelings, eliciting automatic thoughts and formulating their impact on current emotions. This helped them both identify and describe their feelings. An overview of cognitive errors was helpful in identifying and labelling emotions. An effort was made to clarify their feelings through cognitive restructuring which is a faculty focussing on one's own thoughts as opposed to an external focus. Some of the techniques used which could have helped are challenging cognitions, graded exposure and activity scheduling. Thus, self-disclosure and behavioural techniques tended to decrease external focus and improve identification and describing feelings. Feedback from patients at the end of the sessions had been repeatedly present on how patients felt 'relieved' and 'light.'

Although there was improvement overall, at some specific timeframes there was no statistically significant change. Across timeframes on alexithymia and difficulty identifying feelings there was no improvement from post test to follow up. This also indicates that gains from therapy were maintained. The reasons could be that home work assignments were given to the patients. Some of them were reminders of outcomes and action that patient had agreed upon in the dysfunctional thought record. Coping statements were written down on cue cards and patients were asked to note down when they have used it. Patients were asked to note down activities of pleasure and mastery which patient is regularly using and rate them. It is also seen that on descriptive statistics (mean) scores there was a reduction of scores from post test to follow up. On difficulty describing feelings there was statistically significant difference from pre test to post test. But on descriptive statistics there was reduction of scores from pre test to follow up. On externally oriented thinking significant changes were present from pre test to follow up. However, on mean scores there was a decrease of scores from pre test to post test to follow up.

The results were in concordance with follow up studies on this topic by Porcelli et al. (2011); Saarijarvi, Salminen, and Toikka (2006) and Tulipani et al.(2010) and who reported an overall decrease in total alexithymia scores. Among the domains, research by Saarijarvi et al. (2006) and Tulipani et al. (2010) found a decrease in difficulty describing and identifying feelings and Porcelli et al. (2011) reported a change in difficulty identifying feelings alone.

Effect Sizes

Effect sizes in the present study for total alexithymia were η^2 =0.64 (pre test, post test to follow-up) and η^2 =0.24, between intervention and control group. Studies have reported large effect sizes of d=1.41 and d=0.60 for total alexithymia scores by Porcelli et al. (2011)and Tulipani et al.(2010)respectively. For the subscale difficulty identifying feelings, the η^2 =0.50 (pre test, post test to follow up) and η^2 =0.10 (intervention and control group). Studies have reported a large effect size, d=1.39 and d=0.73 by Porcelli et al. (2011) and Tulipani et al.(2010) respectively. On difficulty describing feelings (intervention group), difficulty describing feelings (between groups) and externally oriented thinking (between groups) the effect sizes in the current study were η^2=0.22, 0.18 and 0.17 respectively. Across time frames, on externally oriented thinking, Kendall's W was W=0.47. In difficulty describing feelings, the effect sizes reported had been d=1.35 and d=0.29 (small effect size) by Porcelli et al. (2011)and Tulipani et al.(2010) respectively. In externally oriented thinking, the effect sizes reported had be end=1.71 and d=0.32by Porcelli et al. (2011)and Tulipani et al.(2010)

respectively. In the current study, large effect sizes had been for difficulty identifying feelings and total alexithymia (η^2 =0.50 and η^2 =0.64 respectively). Similar effect sizes have been reported by Tulipani et al.(2010).

CONCLUSIONS

To conclude, alexithymia improved in the intervention group post therapy when compared to the control group. Scores in the intervention group improved when compared to the control group on alexithymia and subscales except on subscale-difficulty identifying feelings (present on descriptive statistics).Within the intervention group too, significant differences were found on alexithymia and subscales both, following therapy and at follow up.

This study shows the effectiveness of psychological interventions in those with breast cancer. There has been clear cut improvement in psychological variables in intervention group as well as on some variables between the intervention and control group. This highlights the need to apply psychological therapy in oncology settings.

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Acknowledgments

The author(s) profoundly appreciate all the people who have successfully contributed to ensuring this paper is in place. Their contributions are acknowledged however their names cannot be able to be mentioned.

Conflict of Interest

There is no conflict of interest.

How to cite this article: Ruth, S & Padmakumari, P (2018). Adjuvant Psychological Therapy for Alexithymia in Women with Breast Cancer.*International Journal of Indian Psychology*, *6*(4), 72-81. DIP:18.01.088/20180604, DOI:10.25215/0604.088