

Efficacy of Psychotherapeutic Nursing Intervention Package on Depression, Anxiety and Emotional Resilience Among Stroke Survivors

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Abstract

Stroke survivors are often subjected to anxiety and depression and other neuropsychiatric disorders. However, little is known about this spectrum of disorders post-stroke. Non-pharmacological interventions can be effective in managing the patients, with only handful of studies in Indian context the problem was addressed to be explored in detail. The study was intended to establish the efficacy of psychotherapeutic nursing intervention package on poststroke depression, anxiety and emotional resilience among stroke survivors. 144 patients with post Stroke depression, anxiety and resilience as assessed by HDRS, HARS and CDRS were non-randomly assigned to experimental and control group. 72 study participants were assigned to experimental and control group. Experimental group received planned interventional package twice a week for 4 weeks. The participants were assessed at 3 different observation points during the course of study. Clinical Interview for Screening (A1), Pre-Test (A2) , Post-Test(A3). The study results with PSD, PSA and Emotional Resilience with mean difference of 3.73, 5.38 and 26.83 respectively was found to be statistically significant at $p < 0.05$ level. The relationship of depression with resilience and anxiety with resilience was found to be weak positive. **Conclusion:** Psychotherapeutic nursing intervention package is effective modality for stroke patients experiencing depression and anxiety scores. With study results the package appears to benefit stroke survivors with depression and anxiety of experimental group beyond what patients of control group experience with standard or usual treatment. However, in patients with severe depression and anxiety the treatment can be used as an adjuvant with psychopharmacological interventions.

Keywords: - Psychotherapeutic Nursing Intervention Package, Stroke Survivors, Depression, Anxiety, Emotional Resilience

Introduction

A stroke, medically referred to as a cerebrovascular accident (CVA), is a serious and often life-altering neurological event. It occurs when the blood supply to a part of the brain is suddenly interrupted or reduced, leading to a lack of oxygen and nutrients. This can be caused by a clot blocking an artery (ischemic stroke) or by a ruptured blood vessel (haemorrhagic stroke). The consequences of a stroke can vary widely, ranging from mild, temporary impairment to severe, permanent disabilities, depending on the location and extent of the brain damage. Recognizing the signs of a stroke, such as sudden weakness, difficulty speaking, or severe headache, and seeking immediate medical attention is crucial, as early intervention can greatly improve outcomes. Additionally, adopting a healthy lifestyle, managing risk factors like high blood pressure and diabetes, and staying informed about stroke prevention can significantly reduce the likelihood of experiencing this debilitating event.

Psychiatric comorbidity in stroke refers to the presence of additional mental health conditions alongside the physical consequences of a stroke. It's a complex and significant aspect of post-stroke care. Individuals who experience strokes are at an increased risk of developing psychiatric disorders such as depression, anxiety, and even post-traumatic stress disorder. These conditions can be both a consequence of the neurological damage caused by the stroke itself, as well as a reaction to the life-altering changes it brings. Depression, for example, is particularly prevalent and can exacerbate physical impairments and hinder rehabilitation efforts. The literature has shown limited documentation of acute neuropsychiatric symptoms as the initial signs of stroke. More often, there is discussion about their intermediate and delayed effects on behaviour and mood. These symptoms have

predominantly been discussed in cases where the right hemisphere of the brain is affected, with depression being the most prevalent symptom, ranging from 9% to 37%, followed by generalized anxiety disorder at 24%.¹⁻⁴ Addressing psychiatric comorbidity is vital for comprehensive stroke recovery. This often involves a multidisciplinary approach, including therapy, medication, and social support, tailored to the individual's specific needs. Recognizing and treating these co-occurring conditions is crucial for improving overall well-being and enhancing the quality of life for stroke survivors.

Psychiatric screening and evaluation in the context of stroke care is regrettably an aspect that often receives less attention in hospitals. The primary emphasis tends to be on the critical tasks of neurological assessment and physical rehabilitation, understandably so, given the immediate and pressing nature of these concerns. However, the psychological impact of a stroke should not be underestimated. Conditions like depression, anxiety, and post-traumatic stress disorder can significantly hinder recovery and diminish a patient's quality of life. Neglecting psychiatric screening and evaluation can lead to undiagnosed and untreated mental health issues that may exacerbate the challenges faced by stroke survivors. Therefore, a more comprehensive approach to stroke care that integrates both neurological and psychiatric assessment is essential for achieving optimal outcomes and ensuring the holistic well-being of individuals on their road to recovery.

The chosen topic serves to underscore the significance of prioritizing psychiatric screening for stroke survivors. Additionally, it aims to assess the effectiveness of psychological interventions in mitigating post-stroke conditions such as depression, anxiety, and bolstering resilience. This dual focus on mental health and neurological recovery is crucial for a comprehensive and successful rehabilitation process, ensuring the overall well-being and improved quality of life for individuals recovering from a stroke.

The objectives of the study are

1. To find the prevalence of depression and anxiety among stroke survivors
2. To evaluate the effectiveness of psychotherapeutic nursing intervention package on post-stroke depression, anxiety and emotional resilience
3. To find out the relationship between post-stroke depression, anxiety and emotional resilience among stroke survivors

Materials and Methods

An evaluative research approach was used for the study. A non-equivalent post-test only control group design was adopted. The study was conducted amongst the stroke survivors admitted in selected hospital of Vadodara, Gujarat. The sample size for the present study was calculated using the following parameter: alpha error probability of 0.05. A total of 144 participants (72 in the intervention group and 72 in the control group) who fulfilled the inclusion criteria were screened and selected for the study using purposive sampling technique. The participants were assessed at 3 different observation points during the course of study. Interview for Recruitment (A1) for securing the eligibility and Pre-Test (A2), Post-Test(A3). Patients assessed with HDRS & HARS as per the set criteria of eligibility were non-randomly allocated to experimental group (n=72) who received psychotherapeutic nursing intervention package (CBT+PST+Psychoeducation) and control group (n=72) who received psychoeducation. Outcome assessments as depression, anxiety and emotional resilience were undertaken at 1st Week and 5th Week post recruitment.

Data Collection Instruments

1. Socio-Demographic Questionnaire: - To measure socio-demographic variables of stroke survivors
2. Hamilton Depression Rating Scale:-Hamilton Depression Rating Scale is a 17 item scale widely used in clinical settings to screen depression
3. Hamilton Anxiety Rating Scale: Hamilton Anxiety Rating Scale is a 14-item scale that is used to measure both psychic and somatic anxiety
4. Connor-Davidson Resilience Scale: - Connor- Davison Resilience Scale will be used to measure emotional resilience of stroke survivors. The Connor-Davidson Resilience scale (CD-RISC) comprises of 25 items each rated on a 5-point scale (0-4), with higher scores reflecting greater resilience. Permission was obtained from the author to use the tool

The Psychotherapeutic Nursing Intervention Package

The Psychotherapeutic Nursing Intervention Package is a carefully curated set of interventions designed to provide a comprehensive approach for stroke survivors dealing with depression, anxiety, and emotional resilience. This package has been meticulously crafted and verified in collaboration with experts in the field.

Included in this package are Cognitive Behavior Therapy, Problem Solving Therapy, Relaxation Training, and Psychoeducation. The intervention sessions are conducted twice a week over the course of four weeks, with each session lasting approximately 50 to 60 minutes.

Data Collection and Psychotherapeutic Nursing Intervention Procedure

Over a span of four weeks, participants in the experimental group received the intervention package twice a week. Each session commenced with a thorough patient interview to establish rapport, identify problems, and formulate a case plan. The initial session emphasized psychoeducation as an ongoing process, effectively addressing concerns.

In the second session, goals were collaboratively established and a treatment plan with clear outcomes was devised. This phase incorporated the components and principles of problem-solving therapy. The subsequent three sessions were dedicated to recognizing negative thought patterns, implementing cognitive restructuring, and scheduling and monitoring activities. Cognitive techniques and behavioural activation were employed as the primary strategies. While typically three sessions were conducted, some cases extended to five based on individual needs.

The following session focused on anxiety management, involving the instruction of relaxation training programs to the patient. Relapse prevention and end-of-treatment strategies were intertwined, signifying the conclusion of the planned intervention. To prevent dependency, patients were encouraged to recall what they had learned and the steps to take in the event of a relapse. This mutual establishment of a recovery plan also fostered understanding and acceptance of the conclusion of treatment. The post-test assessment was administered in the fifth to sixth week.

The data collected were analysed using descriptive and inferential statistics. Frequency distributions were used to describe demographic characteristics. The “t- test” was used to determine the effectiveness of effectiveness of psychotherapeutic nursing intervention package on post-stroke depression, anxiety and emotional resilience. The association of post-stroke depression, anxiety and resilience with selected socio-demographic variables of stroke survivors assessed using Chi-square test. Pearson correlation was performed to check the relationship between relationship between post-stroke depression, anxiety and emotional resilience among stroke survivors

Ethical Considerations

The study was approved by the Institution Ethics Committee with Ethical Approval Number-PUIECHR/PIMSR/00/081734/3703. The investigator introduced self to the subjects and the purpose of the study was explained to the participants using subject information sheet. The investigator assured confidentiality, and the written informed consent was obtained from participants in both interventional and control groups.

Results

Table gives information regarding the demographic profile of stroke survivors

Participants Demographics

Out of 144 samples 11 (7.6%) were of 35- 50 years, 44 (30.6%) belonged to 50 to 65 years of age group, 70(48.6%) belonged to 65 to 80 years and 19 (13.2%) were patients of age group 80 years or more. In terms of gender distribution 80 (55.6%) were male and 64(44.4%) were female, educational qualification was included in the demography the distribution showed that 38 (26.4%) were illiterate and 106 (73.6%) were literate. As far as occupation of samples is concerned 86 (59.7%) were unemployed whereas 19 (13.2%) were self-employed and others were employed in Government and private sector.

Clinical Profile

Clinical profile was assessed primarily which indicated that only 47 (32%) had no past medical history whereas over 97 (67.4%) had past medical history such as DM, HT which indicates latter being the predecessor.

Past surgical history was interviewed and it was found that over 15 (10.4%) survivors had no surgical history whereas majority of patients that is 129 cases (89.6%) had surgical history in the past. No Comorbidities were reported by the patient.

The side affected in stroke was extracted from reports and it was found that 40 (27.8%) had lesion in the right side, 72 (50 %) had lesion in the left side whereas 11 (7.6 %) had lesion on both sides and 21 cases(14.6%) had an unclear status that requires further investigation.

Insurance status of the respondents was interviewed were it was found that 131(91%) had no health insurance and only 13 (9%) had health insurance. No insurance coverage can increase the caregiver burden and also affects the health outcomes of the patient.

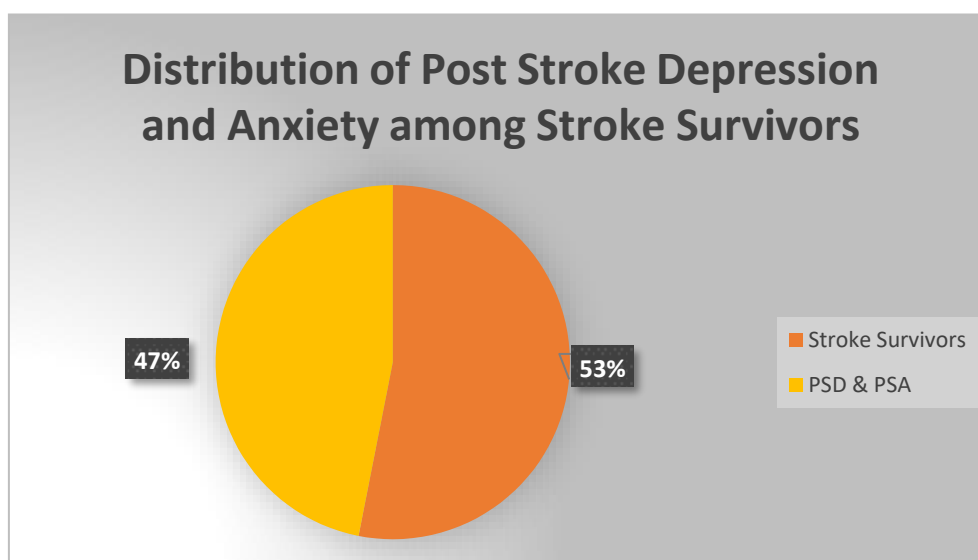
In personal history 22 (15.2%) patients reported that they actively smoke cigarettes, 27(18.8%) were alcoholics and 8(5.6%) had habit of tobacco chewing and 3 (2.1%) had admitted to drug consumption prior to stroke attack that is an indication of bad habits which impairs health and explains the link to stroke.

Out of 144 cases 108(75%) had ischemic stroke, 27(18.8%) had haemorrhagic stroke whereas 9 (6.2%) were unclear cases.

Point Prevalence of Depression and Anxiety among Stroke Survivors

Cases Screened = 309

Variables	Cases	Percentage
Depression and Anxiety	144	47%



The prevalence of poststroke depression and anxiety concomitantly was screened in stroke survivors. Clinical Interviewing followed by Hamilton Depression Rating Scale and Hamilton Anxiety Rating Scale was used for confirming the case. 309 Stroke survivors were interviewed and screened. 145 patients were found to have Post Stroke Depression and Anxiety and the prevalence rate was found to be 47%. 144 patients were recruited for the further research enquiry.

Effectiveness of psychotherapeutic nursing intervention package on post-stroke depression, anxiety and emotional resilience among stroke survivors

N=72

Effectiveness	Pre-test Mean ± SD	Post-test Mean ± SD	Mean difference	t value	df	p value
Depression	12.62±3.11	8.89±4.31	3.73	6.272	71	0.001*
Anxiety	16.17±2.75	10.78±4.39	5.38	8.994	71	0.001*
Emotional resilience	111.67±13.63	138.50±9.17	26.83	14.49	71	0.001*

*P<0.05 level of significance

NS-Non-Significance

This table illustrates the effectiveness of psychotherapeutic nursing intervention package on post-stroke depression, anxiety and emotional resilience by t-test.

There was a statistically significant difference between pretest depression mean ± SD scores (12.62±3.11) and post-test depression mean ± SD scores (8.89±4.31) with a mean difference of 3.73 at p 0.001* (p<0.005 level of significance). This is indicative of the effectiveness of psychosocial intervention on depression

Among Stroke Survivors pretest anxiety mean ± SD scores (16.17±2.75) at 1st week and post-test anxiety mean ± SD scores (10.78±4.39) at 5th week was found to be statistically different at p 0.001* (p<0.005 level of significance).

The emotional resilience is a psychological predictor of functionality, recovery and quality of life was also assessed before and after experimentation. With a mean difference of 26.83, there was significant difference observed in pretest mean ± SD scores (111.67±13.63) and post-test mean ± SD scores (138.50±9.17) at p 0.001* (p<0.005 level of significance)

Psychosocial interventions if planned and curated carefully can positively impact the psychological constructs and distress experienced by the stroke patients. However, the crucial part is the time of screening and prompt intervention at the early stages.

Comparison of post-stroke depression, anxiety and emotional resilience among stroke survivors between experimental and control group.

N=144

Comparison Post-test	Experimental group Mean ± SD	Control group Mean ± SD	Mean difference	t value	df	p value
Depression	8.89±4.31	13.36±3.25	4.47	7.025	142	0.010*
Anxiety	10.78±4.39	17.74±5.05	6.95	8.822	142	0.001*
Emotional resilience	138.50±9.17	116.82±13.77	21.68	11.15	142	0.001*

*P<0.05 level of significance

NS-Non significance

The table shows comparison of post-stroke depression, anxiety and emotional resilience among stroke survivors between experimental and control group indicates that the changes observed in the experimental group is solely due to the effect of intervention and not due to any other attributes. The clear differentiation in post-test depression mean ± SD scores in experimental group (8.89±4.31) and post-test depression mean ± SD in control group (13.36±3.25), post-test anxiety mean ± SD scores in experimental group (10.78±4.39) and post-test anxiety mean

± SD scores in control group (17.74±5.05), post-test resilience mean ± SD scores in experimental group (138.50±9.17) post-test resilience mean ± SD scores in control group (116.82±13.77) with a mean difference of 4.47, 6.95, 21.68 respectively was found to be statistically significant at $p < 0.005$ level of significance.

Relationship of post-stroke depression, anxiety on emotional resilience among stroke survivors

Group	Correlation	Emotional Resilience	
		Pre-test	Post-test
Experimental Group	Depression	($r = 0.101, p = 0.399^{NS}$)	($r = 0.097, p = 0.416^{NS}$)
	Anxiety	($r = 0.161, p = 0.313^{NS}$)	($r = 0.143, p = 0.232^{NS}$)
Control Group	Depression	($r = 0.215, p = 0.069^{NS}$)	($r = 0.144, p = 0.227^{NS}$)
	Anxiety	($r = 0.124, p = 0.341^{NS}$)	($r = 0.151, p = 0.273^{NS}$)

Pearson Co-relation coefficient as illustrated in Table. It was found that there was weak positive relationship between the variables that suggests the strong and independent effect of the variables.

Discussion

309 Stroke survivors were interviewed and screened. 145 patients were found to have Post Stroke Depression and Anxiety and the prevalence rate was found to be 47%. Similar study was found in study conducted by Abhilash Patra entitled Systematic review and Meta Analysis on Prevalence of Depression among Stroke Survivors in India The literature search was from 1960-2019. The study findings showed that Prevalence of post-stroke depression in the studies varied from 24% to 90%. The pooled prevalence was 55% (95% CI 43%, 65%) with high heterogeneity ($I^2=94.83\%$). Prevalence also varied between the tools (HAMD -60%, GDS -70%, HADS -40%).⁵

Additional similar findings can be seen in study conducted by Nasmi Noushad Entitled By Post Stroke Depression And Anxiety: Prevalence And Correlates. This study was conducted for a period of 6 months among 81 patients admitted with stroke Post-stroke depression (PSD) and post-stroke anxiety (PSA) are common neuropsychiatric symptoms after stroke, with estimated prevalence rates between 40% and 30%, respectively.⁶

The effectiveness of psychotherapeutic nursing intervention package on post-stroke depression, anxiety and emotional resilience was computed by t-test. The results showed that there is a significant difference between pre-test and post-test outcome measures.

Similar findings can be observed in study conducted by Wang titled meta-analysis of randomized controlled trials (RCTs) of CBT for PSD. Altogether 23 studies with 1,972 participants with PSD were included and analysed. Of the 23 RCTs, 39.1% (9/23) were rated as high-quality studies, while 60.9% (14/23) were rated as low quality. CBT showed positive effects on PSD compared to control groups (23 arms, SMD = -0.83, 95% CI: -1.05 to -0.60, $P < 0.001$). Both CBT alone (7 arms, SMD = -0.76, 95% CI: -1.22 to -0.29, $P = 0.001$) and CBT with antidepressants (14 arms, SMD = -0.95, 95% CI: -1.20 to -0.71, $P < 0.00001$) significantly improved depressive symptoms in PSD. CBT had significantly higher remission (6 arms, RR = 1.76, 95% CI: 1.37-2.25, $P < 0.00001$) and response rates (6 arms, RR = 1.41, 95% CI: 1.22-1.63, $P < 0.00001$), with improvement in anxiety, neurological functional deficits and activities of daily living.⁷

Similar findings can be observed in study conducted by Jessica Ahrens titled systematic review and meta-analysis of Cognitive Behavioral therapy for managing depressive and anxiety symptoms after stroke The search resulted in 563 articles, from which 10 (N = 672) were ultimately included, including 6 randomized controlled trials. At the conclusion of the studies, Cognitive Behavioral Therapy (CBT) demonstrated significant reductions in both overall anxiety (SMD± SE: $1.01 \pm 0.32, p < .001$) and depression (SMD± SE: $0.95 \pm 0.22, p < .000$) symptoms, showing substantial effects. Furthermore, after a span of three months, CBT maintained a moderate impact on anxiety (SMD± SE: $0.779 \pm 0.348, p < .025$) and depression (SMD± SE: $0.622 \pm 0.285, p < .029$) scores..⁸

The relationship of post stroke depression, anxiety and emotional resilience was computed by Karl Pearson Correlation Coefficient. It was found that there was weak positive corelationship between the variables that suggests the strong and independent effect of the variables.

Similar findings can be seen in study conducted by Way K.W. Lau on The Resilience of Depression and Anxiety Symptoms: A three wave cross lagged study. This research delved into the bidirectional connection between resilience and symptoms of depression and anxiety, employing a three-wave cross-lagged methodology. The initial, third, and sixth months were used to assess the levels of resilience, depression, and anxiety symptoms in 125 university students devoid of psychiatric disorders (62 of whom were female). There were no notable alterations in resilience levels observed over the six-month period. However, there was a noteworthy increase in depressive symptoms, though not anxiety symptoms, at the third and sixth months in comparison to the baseline. The three-wave cross-lagged models unveiled an unstable reciprocal interplay between resilience and depression, contrasting with a steady reciprocal relationship between resilience and anxiety symptoms as time progressed. This mutual interplay between resilience and mental health difficulties underscores the significance of nurturing resilience for the prevention of mental illnesses, as well as the importance of managing mental health symptoms at subclinical levels to monitor resilience. The fluctuating nature of the reciprocal relationship between resilience and depression symptoms across time implies the presence of potential moderating factors that influence this relationship.⁹

Conclusion

This study concluded that the Psychotherapeutic nursing intervention package is effective modality for stroke patients experiencing depression and anxiety scores. With the study findings it can be concluded that psychotherapeutic intervention package as a non-pharmacological intervention can be of incremental value in post stroke depression and anxiety and improving emotional resilience which is a strong predictor of functionality and recovery. With study results the package appears to benefit stroke survivors with depression and anxiety of experimental group beyond what patients of control group experience with standard or usual treatment. However in patients with severe depression and anxiety the treatment can be used as an adjuvant with psychopharmacological interventions.

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Conflict of Interest

There are no conflict of interest

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