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ORIGINAL

Healing minds, restoring lives: a nursing approach to post-stroke emotional recovery reimagined

Curando mentes, restaurando vidas: un enfoque de enfermería reinventado para la recuperación emocional post-ACV

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ABSTRACT

Introduction: stroke survivors frequently experience depression, anxiety, and other neuropsychiatric issues. Despite this, limited research exists on post-stroke psychological disorders, particularly within the Indian context. Non-pharmacological interventions offer promise and warrant further exploration.
Objective: to evaluate the effect of stroke recovery nursing interventional package among survivors of stroke.
Methods: an assessment was carried out on 144 post-stroke patients.The experimental and control groups each received an equal number of participants, assigned non-randomly.The experimental group received a structured intervention twice weekly for four weeks. Evaluations were conducted at three key points: Initial Screening, Pre-intervention and post-intervention test.
Results: statistically significant improvements were observed in depression (mean difference: 3,73), anxiety (5,38), and resilience (26,83) at p<0,05. Weak positive correlations were found between resilience and both depression and anxiety. Statistically significant improvements were observed in depression (mean difference: 3,73), anxiety (5,38), and resilience (26,83) at p<0,05. Weak positive correlations were found between resilience and both depression and anxiety."
Conclusions: the intervention effectively reduced psychological symptoms, especially when combined with pharmacological treatment for severe cases.

Keywords: Stroke Survivors; Post-stroke Emotional Recovery; Nursing Intervention.

RESUMEN

Introducción: los supervivientes de un accidente cerebrovascular suelen sufrir depresión, ansiedad y otros problemas neuropsiquiátricos. A pesar de ello, existen pocos estudios sobre los trastornos psicológicos posteriores a un accidente cerebrovascular, especialmente en el contexto indio. Las intervenciones no farmacológicas son prometedoras y merecen una mayor investigación.
Objetivo: evaluar el efecto del paquete de intervenciones de enfermería para la recuperación del accidente cerebrovascular entre los supervivientes de un accidente cerebrovascular.
Método: se llevó a cabo una evaluación en 144 pacientes que habían sufrido un accidente cerebrovascular. Los grupos experimental y de control recibieron el mismo número de participantes, asignados de forma no aleatoria. El grupo experimental recibió una intervención estructurada dos veces por semana durante cuatro semanas. Las evaluaciones se realizaron en tres momentos clave: selección inicial, prueba previa a la intervención y prueba posterior a la intervención.

Resultados: se observaron mejoras estadísticamente significativas en la depresión (diferencia media: 3,73), la ansiedad (5,38) y la resiliencia (26,83) con un valor p < 0,05. Se encontraron correlaciones positivas débiles entre la resiliencia y la depresión y la ansiedad. Se observaron mejoras estadísticamente significativas en la depresión (diferencia media: 3,73), la ansiedad (5,38) y la resiliencia (26,83) con un valor p < 0,05. Se encontraron correlaciones positivas débiles entre la resiliencia y tanto la depresión como la ansiedad.
Conclusiones: la intervención redujo eficazmente los síntomas psicológicos, especialmente cuando se combinó con tratamiento farmacológico para los casos graves.

Palabras clave: Supervivientes de Accidente Cerebrovascular; Recuperación Emocional Tras un Accidente Cerebrovascular; Intervención de Enfermería.

INTRODUCTION

Stroke, or cerebrovascular accident (CVA), is an acute neurological event involving a sudden interruption of brain perfusion due to either arterial impediment also known as cerebral ischemia or burst of blood vessel (hemorrhagic).[1] In India, stroke has emerged as a critical non-communicable disease, ranking among the foremost causes of mortality and long-term disability amid a shifting epidemiological landscape.[2,3]

The Indian Council of Medical Research reports a stroke prevalence of 84–262 per 100 000, with increasing mortality.[3] In Gujarat, this burden is mirrored by rising admissions in tertiary centers and limited rural rehabilitation access, intensifying systemic strain.[4,5,6]

Stroke, a significant public health concern globally, is caused by various factors that contribute to the interruption of blood flow to the brain, leading to neurological impairment. Among the leading causes of stroke are hypertension,[7] atrial fibrillation,[8] diabetes mellitus,[9] smoking[10], dyslipidaemia,[11] obesity,[12] physical inactivity,[13] excessive alcohol consumption,[14] genetic factors,[15] and other cardiovascular diseases such as coronary artery disease, carotid artery disease, and peripheral artery disease.[16]

Stroke's multidimensional impact—encompassing physical, neurological, and emotional dysfunction—necessitates an integrated, multidisciplinary rehabilitation approach.[17,18]

Neuropsychiatric sequelae such as depression, anxiety, and PTSD are prevalent post-stroke, linked to negative consequences such as diminished quality of life, increased demands on care-giver, and impaired recovery.[19,20,21] Addressing these psychiatric comorbidities through tailored interventions involving therapy, pharmacological support, and psychosocial care is essential.[22,23] However, psychiatric evaluation remains underprioritized in clinical settings, where neurological stabilization and physical recovery dominate care protocols.[24,25,26,27]

Stroke survivors frequently require long-term care and support, including rehabilitation services, assistive devices, and community-based interventions to optimize recovery and facilitate reintegration into society.[28] The demand for stroke-related healthcare services is projected to increase in the coming decades, underscoring the importance of sustainable healthcare systems and evidence-based interventions.[29]

Integrated management approaches, including pharmacological, psychotherapeutic, and rehabilitative interventions, are recommended by WHO for addressing psychiatric co-morbidities and promoting recovery post-stroke.[30] A holistic stroke management framework must incorporate routine mental health screening to optimize functional recovery and enhance emotional resilience.[31,32] Prioritizing psychological interventions is thus imperative to achieving comprehensive, patient-centered stroke rehabilitation.

The overall objective of the study is to evaluate the effect of a stroke recovery nursing interventional package among stroke.

METHOD

Out of 400 individuals screened, 144 participants aged 18–70 years with mild to moderate post-stroke depression (PSD), meeting specified inclusion and exclusion criteria, were non-randomly assigned to experimental or control groups. The experimental group underwent a structured psychotherapeutic nursing intervention twice weekly for four weeks. Initial sessions focused on rapport building, problem identification, and case formulation. Ongoing psychoeducation, collaborative goal setting, and individualized treatment planning based on problem-solving therapy followed. Core sessions included cognitive restructuring, behavioral activation, and activity scheduling over three to five sessions. The program concluded with anxiety management using relaxation techniques and relapse prevention.

Outcomes were assessed using HAMD-17 and HAM-A, while resilience was measured via the Connor-Davidson Resilience Scale. Descriptive and inferential statistics, including t-tests, chi-square tests, and Pearson correlation, were used to analyze effectiveness and socio-demographic associations.

Instruments

1. *Socio-Demographic Questionnaire:* A structured tool designed to collect baseline socio-demographic data

of stroke survivors, including age, gender, education, occupation, and medical history.

2. *Hamilton Depression Rating Scale (HAMD-17):* The Hamilton Depression Rating Scale (HAMD-17) is a 17-item tool administered to evaluate and quantify the intensity of depressive symptoms in clinical settings

3. *Hamilton Anxiety Rating Scale (HAM-A):* A 14-item scale measuring both psychological and somatic manifestations of anxiety, commonly used in psychiatric evaluations.

4. *Connor-Davidson Resilience Scale (CD-RISC):* This tool consists of 25 self-reported items aimed at measuring emotional resilience, where elevated scores reflect higher resilience levels. Permission to use the instrument was formally granted.

Implementation of Psychotherapeutic package

As illustrated in table 1, the structured session framework comprised three sequential phases: an initial 10-minute segment focused on mood assessment, agenda setting, and homework review; a core 35–40 minute phase involving collaborative problem exploration, psychoeducation, rationale-based intervention delivery, implementation, and patient reflection; and a concluding 5–10-minute phase dedicated to feedback and session termination. This format ensured consistency, therapeutic engagement, and goal-directed intervention within each session, optimizing clinical effectiveness and patient outcomes.

Table 1. Steps of Planned Psychotherapeutic Intervention Package- Session Wise

Steps	Components	Time Duration
I	Beginning of Session Checking the Mood and Emotions Setting of Agenda Reviewing Homework/TRS	10 Minutes
II	Discussion & Working on Agenda/ Problem Collaborative discussion on how to approach problem Introducing the intervention paired with psychoeducation Rationale for introduction of intervention Implementing the planned intervention Assessment of agenda set Summary or Reflection by Patient Planning and discussing homework	35 to 40 Minutes
III	Feedback and termination of Session	5 to 10 Minutes

Ethical Considerations

Approval for the study was granted by the Institutional Ethics Committee. The researcher personally approached the participants, providing them with a subject information sheet and outlining the purpose of the study. Participants were assured that their information would remain confidential, and written informed consent was collected from individuals in both the intervention and control groups.

RESULTS

Table 2 presents the baseline and diagnostic profile of respondents. Most participants were aged 65–80 years (48,6 %), male (55,6 %), Hindu (89,6 %), school-educated (41 %), and unemployed (59,7 %), with a past medical history (67,4 %). Ischemic stroke (75 %) and left hemispheric localization (52,1 %) were predominant. While 70,8 % had no comorbidities, 58,3 % denied substance use. Chi-square analysis revealed no significant group differences across variables, including age (x^2=1,713, p=0,634), gender (x^2=0,113, p=0,736), and stroke type (x^2=1,185, p=0,552), confirming baseline homogeneity (p > 0,05), which strengthens internal validity for subsequent intervention analysis

Table 2. Frequency And Percentage Distribution Of Demographic Variables

Demographic variables	Total	Experimental group		Control group		x^2 value df p value
		f	%	f	%	
Age in years						
a. 35-50 years	11 (7,6 %)	4	5,6	7	9,7	1,713
b. 51-65years	44 (30,6 %)	24	33,3	20	27,8	3
c. 66-80 years	70 (48,6 %)	36	50	34	47,2	0,634^{NS}
d. 81 years and above	19 (13,2 %)	8	11,1	11	15,3	
Gender						0,113
a. Male	80 (55,6 %)	39	54,2	41	56,9	1
b. Female	64 (44,4 %)	33	45,8	31	43,1	0,736^{NS}

Religion						
a. Hindu	129 (89,6 %)	63	87,5	66	91,6	0,848
b. Muslim	9 (6,2 %)	5	6,9	4	5,6	2
c. Christian	6 (4,2 %)	4	5,6	2	2,8	0,654[NS]
Education						
a. Illiterate	38 (26,4 %)	21	29,2	17	23,6	1,132
b. School	59 (41 %)	28	38,9	31	43,1	3
c. Undergraduate	33 (22,9 %)	15	20,8	18	25	0,769[NS]
d. Post graduate	14 (9,7 %)	8	11,1	6	8,3	
Occupation						
a. Unemployed	86 (59,7 %)	45	62,5	41	56,9	0,977
b. Self employed	19 (13,2 %)	8	11,1	11	15,3	3
c. Government employee	5 (3,5 %)	3	4,2	2	2,8	0,806[NS]
d. Private employee	34 (23,6 %)	16	22,2	18	25	
Past medical history						0,284
a. No	47 (32,6 %)	25	34,7	22	30,6	1
b. Yes	97 (67,4 %)	47	65,3	50	69,4	0,594[NS]
Past surgical history						0,670
a. No	15 (10,4 %)	9	12,5	6	8,3	1
b. Yes	129 (89,6 %)	63	87,5	66	91,7	0,413[NS]
Any comorbidities						0,538
a. No	102 (70,8 %)	49	68,1	53	73,6	1
b. Yes	42 (29,2 %)	23	31,9	19	26,4	0,463[NS]
Side affected						
a. Right	40 (27,8 %)	21	29,2	19	26,4	1,402
b. Left	72 (50 %)	35	48,6	37	51,4	3
c. Both	11 (7,6 %)	4	5,6	7	9,7	0,705[NS]
d. Unclear	21 (14,6 %)	12	16,6	9	12,5	
Insurance status						0,761
a. No	131 (91 %)	64	88,9	67	93,1	1
b. Yes	13 (9 %)	8	11,1	5	6,9	0,383[NS]
Pre stroke hospitalization						0,572
a. No	106 (73,6 %)	55	76,4	51	70,8	1
b. Yes	38(26,4 %)	17	23,6	21	29,2	0,449[NS]
Bad habits						
a. Smoking	22 (15,2 %)	9	12,5	13	18	
b. Alcohol	27 (18,8 %)	12	16,7	15	20,8	2,084
c. Tobacco	8 (5,6 %)	5	6,9	3	4,2	4
d. Drugs	3(2,1 %)	2	2,8	1	1,4	0,720[NS]
e. No	84 (58,3 %)	44	61,1	40	55,6	
Type of stroke						
a. Ischemic	108 (75 %)	56	77,8	52	72,2	1,185
b. Hemorrhagic	27 (18,8 %)	13	18	14	19,4	2
c. Unclear	9 (6,2 %)	3	4,2	6	8,4	0,552[NS]
Localization of stroke						
a. Right hemispheric	49 (34 %)	24	33,3	25	34,6	2,206
b. Left hemispheric	75 (52,1 %)	36	50	39	54,2	3
c. Bilateral infarcts	13 (9 %)	9	12,5	4	5,6	0,530[NS]
d. Unspecified	7(4,9 %)	3	4,2	4	5,6	
*P<0,05 level of significance		NS-Non significance				

Table 3 presents post-stroke psychological outcomes. Pre-test comparisons showed no significant differences between experimental and control groups in depression (F = 0,398, p = 0,52), anxiety (F = 0,027, p = 0,869), or emotional resilience (F = 0,02, p = 0,887). Post-intervention, the experimental group showed significantly lower depression (F = 49,35), anxiety (F = 77,82), and improved emotional resilience (F = 123,54), all at p < 0,001.

Table 3. Post-Stroke Psychological Outcomes

Post-Stroke Psychological Outcomes		N	Mean	SD	SE	Min	Max	F	p - value
Pre test depression	Experimental Group	72	12,63	3,110	0,367	8	19	0,398	0,52 (NS)
	Control Group	72	12,94	2,959	0,349	8	19		
Post test depression	Experimental Group	72	8,89	4,310	0,508	3	18	49,35	<0,001 (HS)
	Control Group	72	13,36	3,256	0,384	8	21		

Pre test anxiety	Experimental Group	72	16,17	2,758	0,325	11	24	0,027	0,869 (NS)
	Control Group	72	16,10	2,246	0,265	12	23		
Post test anxiety	Experimental Group	72	10,78	4,390	0,517	4	22	77,82	<0,001 (HS)
	Control Group	72	17,74	5,052	0,595	11	31		
Pre test emotional resilience	Experimental Group	72	111,67	13,637	1,607	79	139	0,02	0,887 (NS)
	Control Group	72	112,01	15,633	1,842	77	139		
Post test emotional resilience	Experimental Group	72	138,50	9,173	1,081	111	157	123,54	<0,001 (HS)
	Control Group	72	116,82	13,777	1,624	82	140		

Figure 1 illustrates the relationship among depression, anxiety, and emotional resilience following stroke in participants amongst both groups. Across pre- and post-tests, correlation coefficients (r) revealed weak, non-significant associations: in the experimental group, depression (r = 0,101, p = 0,399) and anxiety (r = 0,161, p = 0,313) showed no significant link with resilience. Similarly, in the control group, depression (r = 0,215, p = 0,069) and anxiety (r = 0,124, p = 0,341) also lacked statistical significance (p > 0,05), indicating minimal impact on resilience.

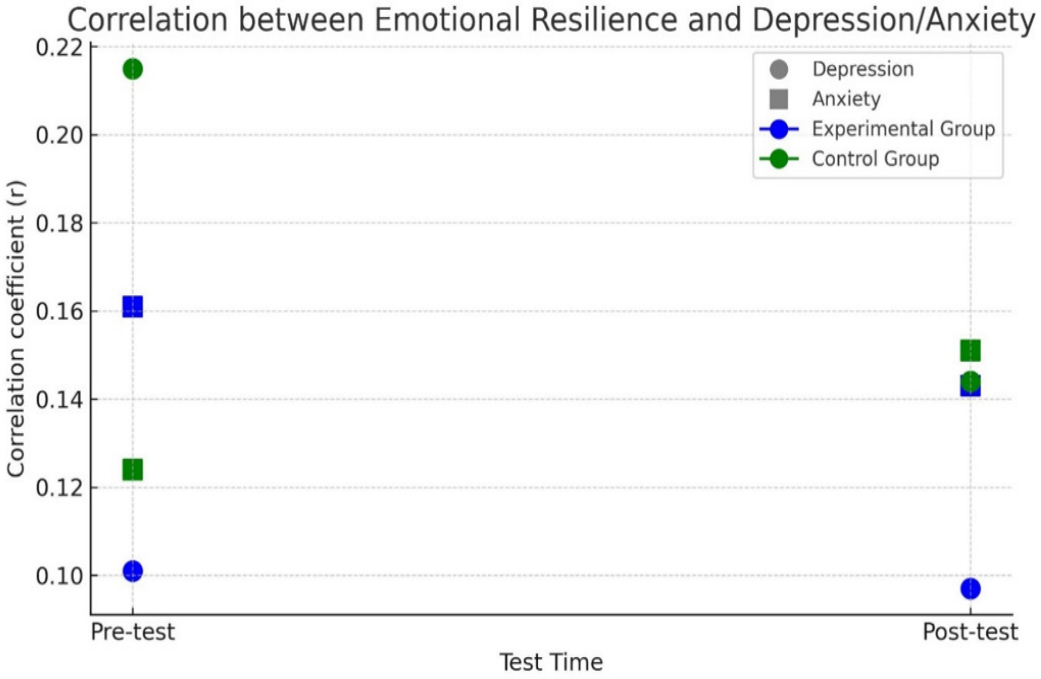

Figure 1. Relationship of post-stroke depression, anxiety on emotional resilience among stroke survivors

Table 4 presents the association between demographic variables and pre-test depression using one-way ANOVA. Significant differences were found across age (F = 3,794, df = 3, p = 0,012*), occupation (F = 0,532, df = 3, p = 0,001*), and stroke localization (F = 0,073, df = 3, p = 0,001**). Depression was highest in those aged 81+ (M = 14,26) and government employees (M = 13,80), suggesting age, occupation, and stroke location influence depression levels.

Table 4. Association between pre-stroke depression with selected socio-demographic variables among stroke survivors

Demographic variables	Pre-test Depression		F/t value	df	p value
	Mean	SD			
Age in years					
a. 35-50 years	12,72	3,37	3,794	3	0,012*
b. 51-65years	11,70	2,74			
c. 66-80 years	13,07	2,97			
d. 81 years and above	14,26	3,05			

Occupation					
a. Unemployed	12,73	2,68	0,532	3	0,001*
b. Self employed	12,21	3,67			
c. Government employee	13,80	3,89			
d. Private employee	13,08	2,39			
Localization of stroke					
a. Right hemispheric	12,63	3,26	0,073	3	0,001*
b. Left hemispheric	12,89	2,76			
c. Bilateral infarcts	12,76	3,76			
d. Unspecified	12,71	3,25			

Table 5 presents the association between demographic variables and pre-test anxiety. One-way ANOVA showed significant differences by age (F = 3,051, df = 3, p = 0,031*) and stroke type (F = 0,015, df = 2, p = 0,02885*). Anxiety was highest in the 81+ (M = 17,36) and 35–50 (M = 17,18) age groups, lowest in 51–65 (M = 15,61), showing a U-shaped pattern. Despite statistical significance in stroke type, mean anxiety scores were clinically similar across groups.

Table 5. Association between pretest -stroke anxiety with selected socio-demographic variables among stroke survivors

Demographic variables	Pre-test Anxiety		F/t value	df	p value
	Mean	SD			
Age in years					
a. 35-50 years	17,18	2,56	3,051	3	0,031*
b. 51-65years	15,61	2,03			
c. 66-80 years	15,95	2,51			
d. 81 years and above	17,36	3,02			
Type of stroke					
a. Ischemic	16,14	2,47	0,015	2	0,02885*
b. Hemorrhagic	16,11	2,75			
c. Unclear	16,0	2,44			

*p<0,05 level of significance NS-Non significance

DISCUSSION

Demographic findings of stroke survivors revealed they were aged 65–80 (48,6 %), male (55,6 %), and Hindu (89,6 %). Most had school-level education (41 %), were unemployed (59,7 %), and had a past medical history (67,4 %). Ischemic strokes (75 %) and left hemispheric involvement (52,1 %) were most common. While 70,8 % reported no comorbidities, 58,3 % denied substance use. Similar results were seen in studies by Rajasekhar et al.[33] (mean age: 60,1 years; 69 % male; ischemic strokes most common) and Kau et al.[34] (mean age: 65,4 years; 72 % male; lower socioeconomic status; education up to 8th grade; left-sided weakness common). Notably, the predominance of left hemispheric involvement in the present study aligns with evidence indicating that left-hemisphere lesions are associated with greater symptom severity and poorer recovery. Lazar RM et al. reported that such lesions lead to worse functional outcomes and higher mortality compared to right-sided strokes.[35] Additionally, Cai et al.[36] noted that female patients have nearly twice the risk of developing post-stroke depression compared to males (OR 2,50, 95 % CI 1,69–3,68).

Psychotherapeutic nursing interventions significantly reduced depression, anxiety, and improved resilience in stroke patients. Wang's meta-analysis of 23 RCTs (n=1,972) showed CBT (alone/with antidepressants) improved depression, anxiety, neurological function, and daily living.[37] Song et al.[38] found evidence-based nursing significantly improved anxiety, depression, sleep, and somatic symptoms. Similar supportive evidence was reported by Ahrens J. in a systematic review and meta-analysis on Cognitive Behavioural Therapy (CBT) for post-stroke psychological symptoms. Across 10 studies (N = 672), including six RCTs, CBT produced significant reductions in anxiety and depression, with effects sustained at three-month follow-up.[39]

The Karl Pearson Correlation Coefficient revealed weak positive relationships between depression, anxiety, and resilience, indicating independent effects. Li et al.[40] found resilience partially mediated the link between sleep disturbance and PSD.

Todorov et al. observed moderate depression in 117 acute post-stroke patients using HADS-D (r = –0,417, p < 0,001).[41] Ghosh et al. reported 67 % depression and 63 % anxiety in younger stroke patients, with severity increasing with age.[42] Mahmoud also linked age to post-stroke depression and anxiety.[43]

Krick et al. found lesion location influenced symptom severity—right prefrontal cortex lesions with depression, left hemisphere lesions with anxiety—highlighting the need for neuroanatomical considerations in management.[44] Klingbeil also highlighted the role of lesion location in post-stroke mood changes. In a cohort of 270 patients,

post-stroke depression at 6 months was 19,6 %, with left ventrolateral prefrontal lesions significantly increasing depression risk, while right-sided lesions showed no association. This reinforces the relevance of left frontal involvement in predicting post-stroke depression.[45]

CONCLUSIONS

This study concludes that the stroke recovery nursing interventional package is an efficacious non-pharmacological modality for managing post-stroke affective disorders, particularly depression and anxiety. The findings suggest that such interventions enhance emotional resilience—a key determinant of neuropsychological recovery and functional independence. Compared to standard care, patients in the experimental group demonstrated significantly greater improvements in mood-related outcomes. However, for individuals with severe depressive or anxiety symptomatology, this therapeutic approach may be most effective when used as an adjunct to pharmacological management.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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