Effectiveness of nursing rehabilitation programme on psychological problems of burn clients admitted at

Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital, LoniBk.

Mr. Eknath Machindra Gawade, Professor, Smt. SEVP College of nursing, Pravara Institute of Medical Sciences Deemed to be University LoniBk. Ahmednagar, Maharashtra India.

Abstract

Background of study: Burn injuries are devastating traumatic experiences which place a large amount of strain on a person's psychological status. Due to the improvement in morbidity rates in relation to burn victims, more and more survivors are forced to make mental alterations to their body image. Depression, anxiety and post-traumatic stress disorder are the most commonly observed psychological effects. Often physical issues are addressed but psychological issues were neglected. This study was conducted mainly focusing on psychological issues of urn client. Objectives: 1.To assess of psychological problems of burn clients in experimental and control group. 2 To assess effectiveness of Nursing rehabilitation programme on psychological problems of burn clients in experimental group with comparison to control group. 3. To find out association of psychological problems with socio-demographic and clinical variables. Material and methods: True experimental study with pre test and post test design with control group evaluative approach, conducted at burn ward of Dr. VVP PRH Loni Bk on 94 burn patients. Result: Two sample t -test for the effectiveness of Nursing rehabilitation programme in comparison to control group , for anxiety   the t-value is 18.25 , for depression t value was 16.54, PTSD The t-value is 18.21184 and for anxiety, depression and PTSD The p-value is < .00001. This shows that result was significant at p < .05. Conclusion: Nursing rehabilitation programme was found effective in reduction of psychological issues of burn patient.

Keywords: Nursing rehabilitation programme, effectiveness, psychological issues and burn clients.

I Introduction

Burns are a global public health problem, accounting for an estimated 265 000 deaths annually. The majority of these occur in low- and middle-income countries and almost half occur in the WHO South-East Asia Region. In India, over 1 000 000, people are moderately or severely burnt every year. [1]

The estimated annual burn incidence in India is approximately 6-7 million per year[2]. In Bangladesh, Colombia, Egypt and Pakistan, 17% of children with burns have a temporary disability and 18% have a permanent disability. Burns are the second most common injury in rural Nepal, accounting for 5% of disabilities.[1]Nearly 10% of these are life threatening and require hospitalization. Approximately 50% of those hospitalized succumb to their injuries. Nearly 1 to 1.5 lac people get crippled and require multiple surgeries and prolonged rehabilitation.[2]

The psychological aspect of burn injury has been researched in different parts of the world, producing different outcomes. Studies have shown that greater levels of acute pain are associated with negative long term psychological effects such as acute stress disorder, depression, suicidal ideation, and post-traumatic stress disorder(PTSD) for as long as 2 years after initial burn injury.[3]

Preliminary reports using the Burn Model System (BMS) dataset indicated that one-third of patients with major burns had clinically significant psychological distress at the time of discharge, and the mean level of psychological distress in the BMS sample was significantly higher than that reflected in published data from a normative sample.[4]

In addition, psychological distress of in-patients of the hospital predicted significantly greater physical impairment for at least 1 year post- burn. some studies show that the rate of PTSD among burn victims can be as high as 35% at 2 to 4 months after the initial injury.[4]

Depression is a major implication of burns, experienced by the majority of burn patients. Moi et al. (2008) in a qualitative study discuss the findings of their 20 open, in depth interviews with burn survivors. Women are at a greater risk for depression in most epidemiology studies around the world (Andrade et al. 2003), thus it is remarkable that there was no difference in gender in relation to depression. There were only three previous studies exploring the frequency of depression symptoms 1 year after discharge, among burn victims.[5]

Anxiety in burn patients may occur due to psychosocial matters, such as grieving over the loss of their previous appearance or troubled by reactions of others.[6]

The psychological and emotional aspects of burns patients are largely ignored, while care is concentrated on physiological recovery process. The different stages of adjustment and psychological challenges, burns patient experiences are highlighted in various studies. This involves a complex interplay of patient's characteristics before injury, moderating environmental factors and the nature of injury and ensuing medical care. With this concept in mind, it is apt to assess systematically two major aspects like anxiety and depression, present either before or thereafter with proper objective evidence based scoring system. Proper rehabilitation into their social, occupational and family situation will be more easily achieved and emotional needs of the patient can be handled more effectively by this approach.[7]

I.1. Statement of problem

Effectiveness of nursing rehabilitation programme on psychological problems of burn clients admitted at Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital Loni Bk,

I.2. Objectives

1. To assess of psychological problems of burn clients in experimental and control group.
2. To assess effectiveness of Nursing rehabilitation programme on psychological problems   of burn clients in experimental group with comparison to control group
3. To find out association of psychological problems with socio-demographic and clinical variables

I.3 Hypothesis

H_1: There is significant reduction in psychological problems of burn clients after implementation of Nursing Rehabilitation Programme in experimental group in comparison with control group.

H0$_1$: There is no significant reduction in psychological problems of burn clients after implementation of Nursing Rehabilitation Programme in experimental group in comparison with control group.

H$_2$: There is significant association between psychological problems of burn clients and socio-demographic and clinical variables .

H0$_2$: There is no significant association between psychological problems of burn clients and socio-demographic and clinical variables

II Methodology

II.1 Research design and approach

True experimental pre test post test research design with control group and Quantitative evaluative approach was used for the present study to assess effectiveness of nursing rehabilitation programme of burn patient admitted at burn ward of Dr. Vithalrao Vikhe Patil Pravara Rural Hospital.

II. 2 Setting of the study

Burn wards of Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital. Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital is a 1275 bedded multispecialty trust hospital at Loni village. There are two burn wards, one for males and one for females. The bed strength of male and female burn wards is 8 each respectively.

II.3 **Sample:** Burn Patients admitted at burn wards of P.R.H.Loni and who fulfill inclusion and exclusion criteria.

II.4 Sample size: Sample size for present study was 42

(Experimental group: 42   Control group: 42)

Considering 10 % attrition, sample size in each group = 42+05 =47

n = 94 (Calculated from OpenEpi, Version 2, open source calculator)

II.5 Sampling technique: Probability sampling technique of sequential type was used for the present study.

II.6 Sampling procedure: Samples were screened for eligibility of inclusion and exclusion criteria. Eligible and willing to participate patients were included in study, eligible burn patients were categorized the by using odd/even numbers as per sequence. Odd numbers were included in experimental group and even numbers were included in to the control group.

II.7 **INCLUSION AND EXCLUSION CRITERIA:**

Inclusion criteria: The burn clients who are
1. Above the age of 18 years.
2. 15-70 % of burn injury.

3. Willing to participate with informed consent.
4. Able to follow and willing to undergo Nursing rehabilitation programme.

Exclusion criteria: The burn who are;
1. Having co-morbid medical illness.
2. Diagnosed of psychiatric disorder and neurotic disorder.
3. Acutely ill and unable to respond to tool.

II. 8 TOOLS AND TECHNIQUES

Semi structured interview schedule, which consists of following sections were used for the present study,

Section A: Socio Demographic Data: It consists of a) Socio demographic variables b)Clinical characteristics.

a)Socio demographic variables: Age, gender, religion, marital status, types of family, income, occupation, education and residence

b) Clinical characteristics - Type of burn, degree of burn, percentage of burn, site of burn, cause of burn, place of burn, Co morbid illness, substance use, surgical management and immunization

Section B. Psychological problems

1. **Anxiety and Depression:** To assess Anxiety and Depression Hospital Anxiety and Depression Scale will be used. It was developed by Zigmond and Snaith (1983).
   The HADS is a fourteen item scale. Seven of the items relate to anxiety and seven related to depression. Scoring 0-7 normal, 8-11 Borderline, 11-21. Each item on the questionnaire is scored from 0-3 and this means that a person can score between 0 and 21 for either anxiety or depression.

2. **Post-traumatic stress disorder:** Post Traumatic Stress Disorder scale which is prepared as per DSM- IV diagnostic criteria. Which consist of 0-68 score. It is further divided in to three category 0-17 indicate normal stress score, 18-34 indicate moderate stress and 35-68 indicate severe form of stress.

II.9 Data collection procedure

1) Ethical Aspects

a) Ethical Clearance: Proposal was presented before Institutional Ethics Committee and Institutional Research Committee of P.I.M.S. (DU), Loni and ethical clearance was obtained.

b) Permission from Concerned Authority: Written permission was obtained from Medical Superintendent of the Dr. Vitthalrao Vikhe Patil Pravra Rural Hospital(Dr. VVP PRH) Loni Bk

c) Informed Written Consent: Explanations regarding study and its objectives was given to study subjects. Subjects were assured for anonymity and confidentiality of data given by them. Written consent was obtained for participation in the study.

2. Pre test: After self introduction purpose of the study explained to the burn patient, those fulfilling inclusion , exclusion criteria and willing to participate in the study, the written informed consent obtained from the study participants of experimental and control group.

3. I. Experimental group: Nursing rehabilitation programme was implimented in experimental group, it consist of education about burn and how to take care after burn injury. Breathing exercises, stretching exercises, anti-

contracture position shown and daily practiced from patient about 1 month or as per need of patient. Spiritual care and counselling was provided to the patient as per need of patients. Those patients require and eligible for REBT (Rational Emotive Behaviour Therapy) session were conducted for them.

Information booklet given to the patient which contain in detail information with picture of all above intervention

Dairy also provided to the patient to mark exercises, positions, breathing exercises and information about REBT session. Nursing rehabilitation programme was implimented for almost 45 days.

II. Control group: Routine treatment for control group patients and after post test information booklet given about care and management of burn and psychological issues of burn patient.

4) Post test: Post test was conducted after 1 and half month of nursing rehabilitative programme with the help of semi structured interview schedule.

II. 10 Data analysis: Descriptive and inferential statistics was used for data analysis. Demographic and clinical variable were analysed by using frequency and percentage. Psychological problems were assessed by using mean &standard deviation as per aspect and level of problems. Effectiveness of nursing rehabilitation programme was evaluated by using 't' test and comparison of pre test- post test and mean difference score of experimental and control group. Association of Socio-demographic and clinical variables with psychological problems of post burn patient assessed by chi square test.

III Results

III. 1 Assessment of socio-demographic characteristics of burn patients

In experimental group most of the burn patients (40.42%) were in age group of 18 years to 29 years and equal percentage of same age group was in control group. Most of the burn patients in the experimental and in control group were male (57.44% and 59.44%) respectively. 44.68 % burn patients in experimental groups had secondary level of school education and 27.65% burn patients in control group had both primary and secondary level of school education. 31.80% burn patients in both experimental and in control group were homemaker. About half of the study population (34.04% and 48.93%) in both the groups belonged to monthly income of Rs 6327-18949. Most of the burn patients (93.62% and 91.49%) in both groups were Hindu by religion. Most of burn patients (80.85% and 74.47%) in experimental and in control group were married. 89.36% and 65.96% burn patients in experimental and control group from joint family. Most of the participants (80.85% and 97.87%) respectively from experimental and control groups were residing in rural area.

III. 2 Assessment of clinical characteristics of burn patients

Most of the study participants (87.23% and 82.98%) from experimental and control groups respectively were victim of thermal burn. 97.87% burn patients in experimental and control group had second degree burn. About half to one third of the study population (72.34% and 59.57%) from experimental and control groups

respectively had 26-50% of burn. Majority of study participants (21.27 % and 17.02%) from experimental and control groups respectively had burn on anterior trunk & upper Extremities, followed by (19.14% and 17.02%) had burn on anterior trunk, posterior trunk and upper extremities from experimental and control group respectively. Majority of the burn patients (100% and 97.87%) in experimental and in control group respectively had accidental burn and only 1 patient in control group got burn due to homicide. Majority of study participant (68.83% and 72.34%) were burn at home in experimental and control group respectively. Majority of the burn patients (63.83% and 65.97%) in experimental and in control group respectively had no any co-morbid illness whereas significant number of study participant (21.28% and 17.02%) were having hypertension in experimental and control group respectively. Majority of study participant (40.12% and 51.06%) in experimental and in control group respectively had No any substance use where as significant number of study participant (27.66% and 19.15%) using tobacco from both the experimental and control group. Majority off study participant (61.70% and 23.40 %) underwent debridement and excion and debridement respectively from experimental group and (42.55% and 34.04%) underwent debridement and debridement excision procedure from control group. Majority of study participant (68.08% and 87.23%) were immunized for tetanus from experimental and control group respectively whereas 31.91% study participant from experimental group and 12.77% study particapnt from control group were immunized for Hepatitis B and TT vaccine.

III. 3 Assessment of psychological problem in post burn client before implementation of nursing rehabilitation programme

Table 1 Assessment of psychosocial & psychological problem in post burn clients

n- 47, 47

SN	Psychological problem	Experimental group		Control group	
		Mean	Standard deviation	Mean	Standard deviation
1	Anxiety	16.80	± 1.80	16.48	± 1.70
2	Depression	17.29	± 1.84	16.12	± 1.54
3	Post traumatic stress disorder	46.14	± 8.87	47.95	± 5.14

Above table shows that in experimental group mean score of psychological problem was,   anxiety (16.80± 1.80), depression (17.27±1.84) and post traumatic stress disorder (46.14± 8.87) respectively where as in control group mean score of psychological problem, anxiety (16.48± 1.70), depression (16.12± 1.54) and post traumatic stress disorder (47.95± 5.14) respectively.

Table 2. Aspect wise assessment of anxiety level in post burn patient before implementation of nursing rehabilitation program

SN	Anxiety level	Experimental group			Control group		
		Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation
1	Normal (0-7)	00	00	00	00	00	00
2	Borderline (8-10)	00	00	00	00	00	00
3	Abnormal anxiety (11-21)	47	16.80	± 1.80	47	16.48	± 1.70
	Over all	47	16.80	± 1.80	47	16.48	± 1.70

Above table no 2 shows that majority of study participant 47(100%) from both the group were having abnormal level of anxiety before implementation of nursing rehabilitation program with the mean score 16.80± 1.80 and 16.48± 1.70 from experimental and control group respectively.

Table 3 Aspect wise assessment of depression level in post burn patient before implementation of nursing rehabilitation program

SN	Depression level	Experimental group			Control group		
		Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation
1	Normal (0-7)	00	00	00	00	00	00
2	Borderline (8-10)	00	00	00	00	00	00
3	Abnormal depression (11-21)	47	17.29	± 1.84	47	16.12	± 1.54
	Over all	47	17.29	± 1.84	47	16.12	± 1.54

Above table no 3 shows that majority of study participant 47(100%) from both the group were having abnormal level of depression before implementation of nursing rehabilitation program with the mean score 17.29± 1.84 and 16.12± 1.54 from experimental and control group respectively

Table 4 Aspect wise assessment of Post traumatic stress level in post burn patient before implementation of nursing rehabilitation program

SN	Level of Post traumatic stress	Experimental group			Control group		
		Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation
1	Normal (0-17)	00	00	00	00	00	00
2	Moderate (18-34)	02	31	± 2.82	01	29	00
3	high (35-68)	45	46.82	± 8.43	46	48.36	± 4.34
	Over all	47	46.14	± 8.87	47	47.95	±5.14

Above table no 4 shows that majority 45 (95.74%) and 46 (97.87%)of study participant were having high level of Post traumatic stress level before implementation of nursing rehabilitation program with the mean score 17.29± 1.84 and 16.12± 1.54 from experimental and control group respectively

III 4 Effectiveness of Nursing rehabilitation programme on psychosocial and psychiatric problems of burn patients with comparison to control group.

Table 5 Effectiveness of nursing rehabilitation programme on psychosocial & psychological problem in burn clients in post test in experimental group with mean difference

SN	Psychological problem	Experimental group				Mean difference of experimental group	
		Pre test		Post test			
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	Anxiety	16.80	± 1.80	6.08	± 1.98	10.72	± 2.30
2	Depression	17.29	± 1.84	6.93	± 1.35	10.36	± 1.97
3	Post traumatic stress disorder	46.14	± 8.87	16.12	± 4.77	29.80	± 8.44

Table no 5 shows that experimental group pre test anxiety mean score was (16.80± 1.80) and post test mean score (6.08± 1.98) with the mean score difference (10.72± 2.30), pre test depression mean score was (17.29± 1.84) and post test mean score (6.93± 1.35) with the mean score difference (10.36± 1.97) and pre test post traumatic stress mean score was (46.14± 8.87) and post test mean score (16.12± 4.77) with the mean score difference (29.80± 8.44).

Hence it shows that there is significant decrease in anxiety, depression and post traumatic stress score in post test as compare to pre test in experimental group.

Table 6. Effectiveness of nursing rehabilitation programme on psychosocial & psychological problem in burn clients in post test in control group with mean difference

SN	Psychological problem variables	Control group				Mean difference of control group	
		Pre test		Post test			
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	Anxiety	16.48	± 1.70	12.48	± 1.82	4	± 1.04
2	Depression	16.12	± 1.54	11.59	± 1.42	4.53	± 1.39
3	Post traumatic stress disorder	47.95	± 5.14	41.70	± 5.09	6.29	± 2.64

Table no 6 shows that control group pre test anxiety mean score was (16.48± 1.70) and post test mean score (12.48± 1.82) with the mean score difference (4± 1.04), pre test depression mean score was (16.12± 1.54) and post test mean score (11.59± 1.42) with the mean score difference (4.53± 1.39) and pre test post traumatic stress mean score was (46.95± 5.14) and post test mean score (41.70± 5.09) with the mean score difference (6.29± 2.64).

Hence it shows that there is no any significant decrease in anxiety, depression and post traumatic stress score in post test as compare to pre test in control group.

Table 7 Effectiveness of nursing rehabilitation programme on psychosocial & psychological problem in burn clients in post test in experimental and control group with mean difference

SN	Psychological problem	Mean difference of Experimental group		Mean difference of control group	
		Mean	Standard deviation	Mean	Standard deviation
1	Anxiety	10.72	± 2.30	4	± 1.04
2	Depression	10.36	± 1.97	4.53	± 1.39
3	Post traumatic stress disorder	29.80	± 8.44	6.29	± 2.64

Table 7 shows that mean difference score of experimental group Vs control group of anxiety was (10.72± 2.30) Vs (4± 1.04), depression (10.36± 1.97) Vs (4.53± 1.39) and post traumatic stress disorder was (29.80± 8.44) Vs(6.29± 2.64)

There was significant difference in mean difference score of psychological problems of experimental group as compare to control group, hence it shows that nursing rehabilitation programme was effective in decreasing psychological issues in burn patients admitted at Dr. VVP PRH Loni Bk.

Table 8 Two sample t -test for the effectiveness of Nursing rehabilitation programme on anxiety in comparison to control group

SN	Variable	Group	Mean	SD	t cal	t tab	p Value
1	Anxiety	Experimental	10.72	±2.30	18.25	1.662	< .00001
		Control	4	±1.04			
2	Depression	Experimental	10.36	±1.97	16.54	1.662	< .00001
		Control	4.53	±1.39			
3.	PTSD	Experimental	29.80	±8.44	18.21	1.662	< .00001
		Control	6.29	±2.64			

df 92 at 5% level of significance

Table no 8 Shows that Two sample t -test for the effectiveness of Nursing rehabilitation programme in comparison to control group , for anxiety the *t*-value is 18.25 , for depression for t value was 16.54, PTSD The *t*-value is 18.21184 and for anxiety, depression and PTSD The *p*-value is < .00001

This shows that result was significant at $p < .05$.

Hence accept the research hypothesis and reject the null hypothesis. Nursing rehabilitation programme was effective in reduction of anxiety, depression and PTSD in experimental group as compare to control group.

IV 4 Association of anxiety, depression and PTSD post test score of experimental group with their socio-demographic and clinical variables.

Table 9 Association of anxiety score with their socio-demographic and clinical variables

SN	Socio-demographic variable	P value	Level of Significance
1	Age	0.912	Non significant
2	Gender	0.5682	Non significant
3	Education	0. 7291	Non significant
4	Occupation	0.5852	Non significant
5	Monthly income	0.8801	Non significant
6	Religion	0.9327	Non significant
7	Marital status	0.3326	Non significant
8	Type of family	0.3538	Non significant
SN	**Clinical variable**		
9	Cause of burn	0.5385	Non significant
10	Degree of burn	0.3639	Non significant
11	Percentage of burn	0.1530	Non significant
12	Nature of burn	0.3639	Non significant
13	Place of burn	0.4828	Non significant
14	Co-morbid illness	0.4828	Non significant
15	Type of substance use	0.2563	Non significant
17	Surgical management	0.2474	Non significant
18	Immunization	0.3345	Non significant

Above table no 9 shows that post test anxiety score of experimental group does not having significant association with socio-demographic and clinical variables of burn patients

Table 10 Association of depression score with their socio-demographic and clinical variables

SN	Socio-demographic variable	P value	Level of Significance
1	Age	0.4721	Non significant
2	Gender	0.3312	Non significant
3	Education	0.1426	Non significant
4	Occupation	0.6729	Non significant
5	Monthly income	0.2621	Non significant
6	Religion	0.2122	Non significant
7	Marital status	0.2331	Non significant
8	Type of family	0.7542	Non significant
SN	**Clinical variable**		
9	Cause of burn	0.4147	Non significant
10	Degree of burn	0.5941	Non significant
11	Percentage of burn	0.2874	Non significant
12	Nature of burn	0.2847	Non significant
13	Place of burn	0.2245	Non significant
14	Co-morbid illness	0.7241	Non significant
15	Type of substance use	0.6111	Non significant
17	Surgical management	0.2829	Non significant
18	Immunization	0.2747	Non significant

Above table no 9 shows that post test depression score of experimental group does not having significant association with socio-demographic and clinical variables of burn patients

Table 11 Association of PTSD score with their socio-demographic and clinical variables

SN	Socio-demographic variable	P value	Level of Significance
1	Age	0.2356	Non significant
2	Gender	0.8291	Non significant
3	Education	0.5624	Non significant
4	Occupation	0.2385	Non significant
5	Monthly income	0.5571	Non significant
6	Religion	0.2141	Non significant
7	Marital status	0.2145	Non significant
8	Type of family	0.3346	Non significant
SN	Clinical variable		
9	Cause of burn	0.2452	Non significant
10	Degree of burn	0.8923	Non significant
11	Percentage of burn	0.4223	Non significant
12	Nature of burn	0.6667	Non significant
13	Place of burn	0.1342	Non significant
14	Co-morbid illness	0.4926	Non significant
15	Type of substance use	0.4652	Non significant
17	Surgical management	0.3729	Non significant
18	Immunization	0.2657	Non significant

Above table no 10 shows that post test PTSD score of experimental group does not having significant association with socio-demographic and clinical variables of burn patients

Hence accept the research hypothesis and reject the null hypothesis

IV Discussion

Two sample t -test for the effectiveness of Nursing rehabilitation programme in comparison to control group , for anxiety the t-value is 18.25 , for depression t value was 16.54, PTSD The t-value is 18.21184 and for anxiety, depression and PTSD The p-value is $< .00001$

This shows that result was significant at $p < .05$. This shows that nursing rehabilitation programme was effective in reduction of anxiety, depression and PTSD in experimental group as compare to control group.

These findings were supported by study conducted by Mr. Mayur Mandre, on effectiveness of breathing exercises on psychological problems of burn patient admitted at PRH, Loni Bk.

V Conclusion

The findings of study shows that in burn client we often address the physiological issues of burn patients but psychological issues always neglected which are equally important in all round of care of patient. Anxiety, depression and PTSD are common psychological issues in burn patients. Nursing rehabilitation programme which consist of consist of education about burn and how to take care after burn injury. Breathing and stretching exercises, anti-contracture position, spiritual care, counselling and REBT was effective in reduction of Anxiety, depression and PTSD. There is need to provide proper psychological care in all burn units.

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