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Effects of Coping Strategies on Mental Health of the End Stage Renal Failure Patients in Pakistan

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***Abstract*:** The study aims to study the efficacy of coping strategies for stress, anxiety and depression on those renal failure patients at end stage and on hemodialysis in Pakistan. Sample (N=106) hemodialysis patients consisted of male patients (n=53) and and female patients (n=53) were randomly selected from the area of Islamabad and divided in two groups as experimental group and control group. DASS (Depression Anxiety and Stress scale) scale was applied for assessment of the stress anxiety and depression. A pre and after research design was been followed. DASS Scores were recorded before treatment. The experimental group was trained for coping strategies for stress, anxiety and depression management for 2 months in 12 sessions through sign language. Randomized Control Trial done while control group received no training sessions and were only on standard treatment. After 12th session for coping strategies data was collected after treatment and was analyzed through SPSS version 26 by applying statistical 't' test. Highly significant difference in stress, anxiety and depressionlevel was found between pre test and post test results. Results showed that coping strategies have positive impact for stress, anxiety and depression issues among ESRD patients on hemodialysis and also show that male ESRD patients on hemodialysis have more stress anxiety and depression issue than female ESRD patients on hemodialysis.

Key Words: Stress Coping Strategies, End Stage Renal Disease Patients (ESRD), Hemodialysis, Anxiety, Depression, Stress Sign Language

1. Introduction

When the patients diagnose with end-stage renal disease then patient required renal replacement therapy and these therapies are kidney transplantation, peritoneal dialysis and hemodialysis. Although hemodialysis has become a life prolonging therapy for patient of end-stage renal disease. Hemodialysis patients deals with unique existential dilemmas for instance end-stage renal disease patient on hemodialysis may experience different types of stressors these stressors lead to stress, anxiety and depression. Hemodialysis patients copes this type of stress through their own way of cope. Stress coping strategies are being developed and beneficial for all peoples same as these strategies are used for hemodialysis patient because stress is the most common psychological problem of ESRD patients those are on hemodialysis. Treatment for end-stage renal disease is kidney transplantation, peritoneal dialysis and hemodialysis. (Hashemi Fesharaki M, 2016).The quality of life as it is perceived by ESRD patients is known to be an important factor acting at the level of the results determined by the treatment of renal replacement

therapy (Mohammad, 2016).

During hemodialysis, patients come to hospitals twice or thrice per week for procedure of hemodialysis and patients also know that if they skipped the hemodialysis once it can lead to critical complication even life threatening conditions. when patient skip dialysis then potassium, creatinine, uric acid level increase in blood and also all electrolytes imbalance in the body that leads to cardiac arrest, and or also leads to death due to this reason patients take stress and also overthink too much that's why these stresses and overthinking disturb the mental health of the sufferers and cause depression, anxiety and stress. Tough routine of hemodialysis procedure also disturbs the mental health of hemodialysis patients Same like that some other reasons also cause the poor mental health condition of patients. End stage renal disease patient who are receiving treatment of hemodialysis also facing financial problems because it is an expensive treatment, time management problem, facing too much dietary restriction in Daily life, social adjustment problems, patient care giver problems, medication sides effects and many others. In this situation it was necessary to provide the solution of these mental health issues provided a base for the current research study to assess the effects of coping strategies for stress, anxiety and depression on the mental health of the end stage renal failure patients and also used this type of intervention for good health of these patients.

1.1 Research Objectives

a) To explore the effects of coping strategies for stress, anxiet and depression on the mental health of dialysis patients.

b) To explore the gender difference in prevalence of stress, anxiety and depression among ESRD patients on hemodialysis.

c) To explore the effectiveness of stress coping strategies for end stage renal disease patients on hemodialysis.

2. Literature Review

2.1 Theoretical Framework

The variable stress in the study is grounded on the transactional model of stress and this model was developed by a well-known Richard Lazarus. The theory proposes that changes in person's life or environmental issues may lead to subjective stress. The theory of Richard Lazarus focuses on cognitive appraisal in response to stress (Lazarus R. S., 2006). Hemodialysis patients are make an effort to cope with their stress stimuli in order to reduce their stress level according to their stress coping ability but in some situations these efforts leads to reducing the stress but on the other hand in some cases use of unhealthy coping styles they are not effectiveor also dangerousso it is necessary that the planning of stress coping styles and also proper interventions are felt by health care worker to control stress level in patients of hemodialysis(Ghaffari M, 2019). Patients of hemodialysis are face multiple psychological problems and these problems can disturb the mental functions and their personality, like that the most of these patients suffers with behavioral problems and also multiple stresses such as isolation, anxiety, depression, delusion and denial(Sabetghadam M, Poorgholami F, et al.., 2016).Research show that 39(65%) of dialysis patients were have mild stress and 12(20%) were have moderate stress and study also revealed that 38(63.3%) of participant (dialysis patients) were never had coping whereas 22(36.70%) of participant had something using for coping. There is negative correlation b/w the coping and level of stress among the hemodialysis patients subjected to hemodialysis insisting on intervention for control the stress therefore cope with the existing condition of dialysis patients(Juliana, M., & Arjunan, P., 2015). Research investigated that the exhaustion is a typical and complex peculiarity that essentially diminishes wellbeing related personal satisfaction among dialysis patients. Albeit profoundly pervasive, weakness is in many cases an unnoticed and under-treated side effect in the dialysis populace. The absence of sufficient techniques for estimation, absence of supplier mindfulness, and the intricate pathogenesis of weariness have puzzled the advancement of powerful mediations to treat weakness(Jhamb, 2014).The study of Mollahadi, (2018) showed that 63.9% of hemodialysis patients had nervousness, 60.5% had sadness and 51.7% had stress. The predominance of tension, sadness and stress is high in kidney transplantation and hemodialysis patients and higher in patients are getting treatment of hemodialysis(Mollahadi, 2018).Being the diagnosed with end-stage renal disease show that if human kidneys are damage, then the patient cannot longer survive independently without any renal replacement therapylike hemodialysis, PD and renal transplant. These renal replacement therapies are procedures are accessible for patients of end-stage renal disease. These are the three renal replacement options available for them, in these three options hemodialysis remains the most common sought form of treatment for ESRD patients. Kidney transplants 2.6%. Hemodialysis 97.20% of incidence ESRD patients in the year of 2013 in

the US(Rojas, 2017). One study show that hemodialysis patients are susceptible to variety of psychological problems like Depression and stress are most common of these psychological problems and with the disease rate that can spread 25%, 4 time the rate between the normal populations(Bayoumi, 2013).

2.2 Rationale of the Study

Renal failure patients are tried to cope with their stress in order to reduce their stress according to their ability but in some cases these efforts lead to reduction in stress on the other hand in some cases due to using ineffective coping styles they are ineffective or even harmful therefore it is necessary that the planning and proper interventions are felt by health care providers to control stress in hemodialysis patients. This study aims to equip the end-stage renal disease patients on hemodialysis with stress coping strategies and management of psychological problems in these patients. Stress coping strategies can help them to control their anxiety and also reduce the stress level in these patients.

2.3 Hypotheses of the Study

H1: Stress coping strategies for stress, anxiety and depression issues will have positive impact among end stage renal disease patient on hemodialysis.

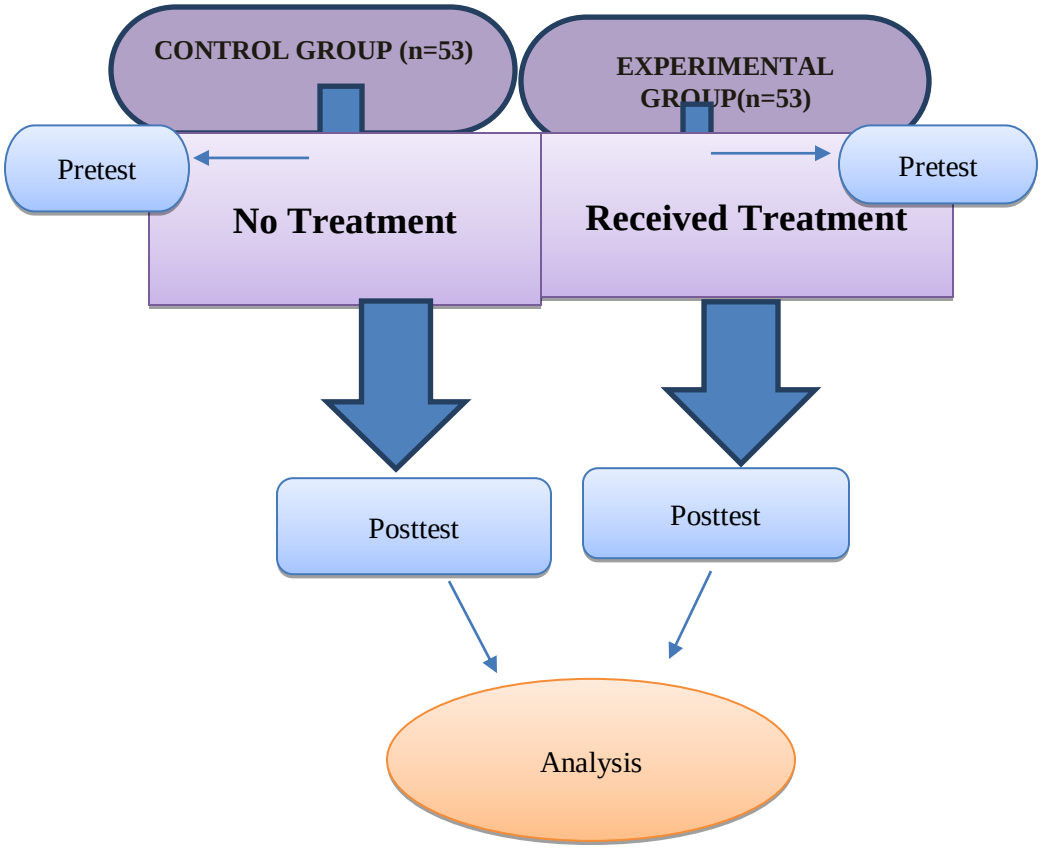
H2: Male ESRD patients who are on hemodialysis treatment will have more stress, anxiety and depression issues than female ESRD patients on hemodialysis.

3. Methodology

3.1 Research Design

Experimental research design was used because we need to check pre-post analysis and secondly, we first select 106 end stage renal disease patients on hemodialysis (sample size calculate by Raosoft) then these patients randomly divided in two groups experimental and control group and then DASS scale apply on both groups.

Figure 1: Conceptual Model of the Research Study (N=106)



3.2 Sample

Sample (N=106)was selected from CRF patients who were on regular dialysis from different hospitals. Sample was consisted of male (n= 53) and female(n= 53) patients. Research participants (N=106) were divided in two group ie experimental group or interventional group and control group*(see Figure 1)*. Purposive sampling technique was been followed (*see table # 1*)**.**

Table 1: Sample Details (N=106)

Gender	Frequency	Percentage
Male	53	50.00
Female	53	50.00
Total	106	100.0

(N=106)

3.3 Operational Definitions

Mental health of the sample was operationally been defined in Depression, Anxiety and Stress and was measured by DASS-21 Scale.

End stage renal failure patients were those who were on under treatment of hemodialysis.

3.4 Procedure

Sample was consisted of 106 patients (male= 53, female= 53) who were under treatment of hemodialysis. Sample was divided in two groups as experimental group or interventional group and control group. DASS scale was used to measure stress, anxiety and depression in both experimental and control group. Experimental group received coping strategies sessions for coping stress, anxiety and depression for 2 months (12sessions)and every session was 20 to 25min. These stress coping strategies are relaxation technique coping skills, positive self-talk, positive thinking, deep breathing exercise, muscle relaxation technique, guided imageryand provide guideline about fluid restriction. Control group did not receive any treatment.After 12 session for 2 months months again apply the DASS scale on both experimental and control group and then result was draw throughSPSS version 26 *by ANOVA* and *T* tests (*Fig#1)*.

3.5Measures

3.5.1 DASS-21

DASS-21, Depression, Anxiety and Stress scale consist on three self-report scales and that is designed to measure the emotional state of Depression, Anxiety and stress. DASS developed by the Lovibond and Lovibond in 1995. DASS consisting on 21 items and these 21-item divided into 3 subscale these are Depression=7, Anxiety=7, Stress-7. Depression anxiety and stress scale is a self-report questionary. DASS scale is used for both clinical and non-clinical populations. Scoring of scale is depend on the response of participant on the items of DASS scale and these responses. Psychometric properties for the scale used in study the Cronbach's Alpha value for DASS scale was 0.714 (<0.74) which indicate internal consistency.

3.6 Delimitation of the Study

3.6.1 Inclusion Criteria

1- Patients who are receiving treatment of hemodialysis treatment for at least six months.
2- Patients who was willing to be part of the research.
3- Patient age was more than 18 years.
4- Patients who was understand the researcher language.

3.6.2 Exclusion Criteria

1- The study not cover the patients who are receiving psychotherapies or psychotic medicine.

2- Patients who are taking psychotherapies.
3- Patients who are not agree to be a part of research.

3.7 Ethical Consideration

All ethical considerations like informed consent, permission from the hospital authories, confidentiality of the research participant and timing of dialysis sessions were been followed.

4. Results

The study aims to explore the effects of stress, anxiety and depression coping strategies for ESRD patients on hemodialysis and management for their psychological problems stress, anxiety and depression. Hemodialysis can lead to stress, anxiety and depression issues and stress coping strategies can help them to control these problems. Data was analyzed by applying statistical t test and ANOVA test (*SeeFigure 1)*.The results, Depression= (M= 11.60, SD= 1.59), Anxiety= (M=11.02, SD=1.37), Stress= (M=11.21, SD= 1.36) Depression= (M= 11.57, SD= 1.51), Anxiety= (M= 10.92, SD= 1.31) and Stress= (M= 11.04, SD 1.44), shows mean differences of stress, anxiety and depression level of the experimental group and control group assessed by DASS posttest control group values of pretest control group. The value of Cohens d of Depression was 0.02, Cohens d of Anxiety was 0.07 and Cohens d value of stress was 0.12 which indicate effect size is normal, p value of Depression was .90 and p value of Anxiety was .71 and p value of Stress was .54, t value of Depression anxiety and stress was .13, .36 and .62 respectively*(see table # 2)*.

Table 2:*t* Scores of the control group on DASS Scale (n=53)

	Pretest control group		Posttest control group			
Variables	M	SD	M	SD	*t*	*P*
Depression	11.60	1.59	11.57	1.51	.13	.90
Anxiety	11.02	1.37	10.92	1.31	.36	.71
Stress	11.21	1.36	11.04	1.44	.62	.54

Note:(p>0.01) M= Mean, SD= Standard deviation

Table 03 show the difference between pretest experimental group and posttest experimental group values of pretest experimental group are Depression (M= 12.40, SD= 1.59), Anxiety (M=12.34, SD=1.71), Stress (M=12.02, SD= 1.43) compare to posttest experimental group Depression (M= 9.51, SD= 1.88), Anxiety (M= 9.36, SD= 2.03) and Stress (M= 8.87, SD 2.01). The value of Cohens d of Depression was 1.64, Cohens d of Anxiety was 1.58 and Cohens d value of stress was 1.80 which indicate large effect size, p value of Depression was .00 and p value of Anxiety was .00 and p value of Stress was .00, t value of Depression anxiety and stress was 8.55, 8.18 and 9.26 respectively.

Table 3: Pre test and Post test *t* Scores of the Experimental group (n=53)

Pretest experimental group			Posttest experimental group				
	M	SD	M	SD	*t*	*P*	*Cohn d*
Depression	12.40	1.59	9.51	1.88	8.55	.000**	1.64
Anxiety	12.34	1.71	9.36	2.03	8.18	.000**	1.58
Stress	12.02	1.43	8.87	2.01	9.26	.000**	1.80

Note: M= Mean, SD= Standard deviation (*p*>.000***)

Table 04 reveals the significant mean difference on male participants, Depression t(104)= .119, Anxiety

t(104)= .81, Stress t(104)= .74findings show that patients of male groups higher scores on DASS scale, Depression (M= 12.02, SD= 1.67), Anxiety (M= 11.81, SD= 1.73) and Stress (M= 11.72, SD= 1.35) Compared to female patients Depression (M= 11.98, SD= 1.60), Anxiety (M= 11.55, SD= 1.62) and Stress (M= 11.51, SD= 1.55. The Cohens d value of depression was 0.02, Cohens d value of Anxiety was 0.16 and Cohens d value of Stress was 0.14 which indicate medium effect size.

Table 4: *t* scores for gender difference in prevalence of depression, anxiety and stress of sample (N=106)

	Male Patients		Female Patients				
	M	SD	M	SD	*t*	*P*	*Cohens d*
Depression	12.02	1.67	11.98	1.60	.119	.90	0.02
Anxiety	11.81	1.73	11.55	1.62	.81	.42	0.16
Stress	11.72	1.35	11.51	1.55	.74	.46	0.14

Note: M= Mean, SD= Standard deviation

4.2 Discussion

This research study exploresthe impact of stress coping strategies for end stage renal disease patients on hemodialysis and explore the gender difference in prevalence of stress, anxiety and depression among ESRD patients on hemodialysis and explore the effectiveness of stress coping strategies for end stage renal disease patients on hemodialysis and also provided guidelines and self-management stress coping strategies to experimental group. It also assesses the efficacy of stress coping strategies for stress, anxiety and depression issues among end stage renal disease patients on hemodialysis. According to first hypothesis of the study "Stress coping strategies for stress, anxiety and depression issues will have positive impact among end stage renal disease patient on hemodialysis". This study assessed the impact of stress coping strategies for ESRD patients on hemodialysis and management for their stress anxiety and depression outburst. Also, assessed the efficacy of stress coping strategies for stress, anxiety and depression issues among ESRD patient on hemodialysis. This research wasan experimental approach to check the efficacy of stress coping strategies which is the basic of psychotherapeutic intervention for stress and also anxiety and depression issues among hemodialysis patients through sign language. As the researcher can understand and comprehend the sign language and is a psychologist as well so this was true experimental research in nature. Randomized control trial done. All coping strategies session were consisted of 12 sessions for 2 month. The mean difference in pre test Depression (M= 12.40, SD= 1.59), Anxiety (M=12.34, SD=1.71), Stress (M=12.02, SD= 1.43) and posttest of experimental group Depression (M= 9.51, SD= 1.88), Anxiety (M= 9.36, SD= 2.03) and Stress (M= 8.87, SD 2.01). The value of Cohens d of Depression was 1.64, Cohens d of Anxiety was 1.58 and Cohens d value of stress was 1.80 indicates highly significant effects of the coping strategies for stress, anxiety and depression on end state renal failure patients. (*table # 2, and 3*).The hypothesis 2 of the research study expalin that "Male ESRD patients who are on hemodialysis treatment will have more stress, anxiety and depression issues than female ESRD patients on hemodialysis". The t scores for male Depression (t(104)= .119, Anxiety t(104)= .81, Stress t(104)= .74) and female (Depression (M= 11.98, SD= 1.60), Anxiety (M= 11.55, SD= 1.62) and Stress (M= 11.51, SD= 1.55). The results reveals the significant mean difference on male participants as compared to female patients proved that male ESRD patients who are on hemodialysis treatment have more stress, anxiety and depression issues then female ESRD patients onhemodialysis*(table # 4).*

5. Conclusion

This study was an experimental approach to check the impact of coping strategies on the stress, anxiety and depression level of end stage renal disease patients who were on hemodialysis. Hemodialysis patients face multiple psychological like stress, anxiety and depression with treatment of hemodialysis. This research prove that coping strategies for stress anxiety and depression have positive effects on the mental health of ESRD patients.The study proved that male ESRD patient who are on hemodialysis have more stress, anxiety and depression issue then female ESRD patient. In Pakistan there is no proper system in dialysis centers or hospitals for management of stress anxiety and depression so this study is helpful in the management of these issues. Through implication of stress coping strategies, we can improve the mental health of ESRD patients on hemodialysis and that baseline for making

proper system of stress, anxiety and depression management and this research is an add up in literature as well.

5.1 Recommendations

1. In this study stress coping strategies were applied to reduce stress, anxiety and depression level among ESRD patients on hemodialysis it is suggested that efficacy of many other psychotherapeutic interventions can be explored among hemodialysis patients.
2. Age of target population of this study was above 18 years. further studies should be conducted on different age groups of both genders.
3. this study was conducted in Shifa international hospital Islamabad Pakistan, further studies should be conducted in other government or private dialysis centers in order to highlight the efficacy of psychological interventions.

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