RESEARCH ARTICLE

Effectiveness of selected nursing interventions on Fatigue and Quality of life among Chronic Renal Failure patients undergoing Hemodialysis in a selected hospital at Madurai

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ABSTRACT:

Title: Effectiveness of selected nursing interventions on fatigue and quality of life among Chronic Renal Failure Patients undergoing Hemodialysis in a selected hospital at Madurai. **Background:** Non communicable diseases are increasing day by day. Health is wealth is an old saying, which is realised by people who has CKD today. As their wealth is reduced by treating the disease throughout their life time, the restrictions in food and fluid impose lot of stress, affects their Quality of life. Nearly 10% of the populations were affected by CKD and millions of them die each year because they could not afford the treatment. Hemodialysis has been proved to be the effective treatment modality. It results in a marked change in the QOL, due to number of modifications and restrictions, which affect patient's psychological and physiological wellbeing. Dialytic nurses can play a crucial role in enhancing quality of life and reducing fatigue level through exercises and teaching. **Aim**: The aim of the study was to evaluate the effectiveness of selected nursing interventions on fatigue and quality of life (QOL) among chronic renal failure patients undergoing hemodialysis in a selected hospital at, Madurai. **Methodology:** Quasi experimental non-equivalent pretest and post-test control group design was used for the study. The study was conducted in patients undergoing hemodialysis in selected hospital at Madurai. A total of 100 patients were selected using convenient sampling technique. Tools used were Piper Fatigue Scale (PFS) and SF 36 World Health Organisation BREF QOL (SF36 WHO BREF QOL) interview scale. The therapeutic nursing intervention which includes planned teaching about care of patient with haemodialysis, demonstration of dialytic exercises, dietary management, adherence to medication, follow up, teaching on sexual relationship were administered over 4 days in a week for 4 consecutive weeks. Data was analysed using descriptive and inferential statistics. **Results:** The therapeutic nursing interventions were effective in improving quality of life and reducing fatigue level. Pre-test with 15th day post-test fatigue scores comparison [t =23.05, P(< 0.001)] , Comparison of pre-test with 30th day post-test fatigue scores [t =41.19, P(< 0.001)], Comparison between 15th and 30th day post-test fatigue scores [t= 25.58, P(<0.001)], Comparison of pre-test with 15th day post-test level of quality of life score [t =16.32, P(<0.001)], Comparison of pre-test with 30th day post-test level of quality of life score [t=23.76; P(<0.001)], Comparison between 15th and 30th day post-test quality of life score [t = -15.19, P(<0.001)]. The problems reported by the people were, physiological problems such as anaemia, muscle cramping, difficulty sleeping, itching, fatigue, neurological disturbances, cognitive impairment, Sexual dysfunction and psychological problems such as depression, feeling of loneliness, sadness, problems with adjustment, lack of love and affection, suicidal behaviour, delirium, anxiety and panic symptoms. The post tests in experimental group, the correlation between fatigue and quality of life in post-test-1 (15th day) was r = - 0.372 and it was significant at p = 0.008. Similarly, the correlation between fatigue and quality of life in post-test - 2 (30th day) was r = -0.370 and it was significant at p=0.008. **Conclusion:** The problems of the people vary from person to person, study findings concluded that, selected nursing interventions are effective intervention to improved Quality of life and reduced fatigue level. There is a real need for nurses to provide physical, mental and social support to treat the health problems and to heighten their spirit.

INTRODUCTION:

Disease is an unavoidable reality and is a community need. Disease occurs at different dimensions, such as social, behavioural, psychological morphological and molecular. The disease faces several problems like physical health problems, financial problems. The identified problems are feeling of neglect and loss of importance in the family and environmental problems. These problems further strengthen the feelings of loneliness, feelings of unwantedness, feeling of inadequacy, obsolescence of skill and education.

There are lots of therapies available for reducing fatigue and improving quality of life:

Nutrition therapy, Sleep disorder treatment, Stress management, Sports, Yoga, Depression treatment, Acupressure are used to lower haemodialysis patients' fatigue, Stress management and psychosocial interventions. (e.g relaxation training, meditation, psycho-education, communication, and social support.)

Nurses indeed play a very important role in preventive, promotive and curative health aspects

NEED FOR THE STUDY:

Health is the level of functional or metabolic efficiency of a living being. In humans, it is the general condition of a person's mind and body, usually meaning to be free from illness, injury or pain.

Kidney is a vital organ and the main function of the kidney is to remove waste products and excess water from the blood. The kidneys purify about 200 litres of blood every day and produce about two litres of urine. The waste products are generated from normal metabolic processes including the breakdown of active tissues, ingested foods, and other substances [National kidney foundation (2006)].

Kidney diseases are silent killers which largely affect the quality of life. Chronic kidney disease, also known as chronic renal disease, is the progressive loss in renal function over a period of months or years. Chronic kidney disease is a widespread medical condition that is progressive in nature (National kidney foundation).

In India, according to survey conducted by National kidney foundation, found that the kidney diseases rank third amongst life- threatening diseases and estimates approximately 200,000 people in India go into terminal kidney failure annually and millions more suffer lesser forms of kidney disease [Alladi, (2007)]

Objective of the study:
1. To assess the level of fatigue and quality of life among patients with chronic renal failure undergoing hemodialysis in experimental group before and after implementing selected nursing intervention.
2. To assess the pre-test and post-test level of fatigue and quality of life among patients with chronic renal failure undergoing hemodialysis in the control group.
3. To evaluate the effectiveness of selected nursing intervention on fatigue and quality of life among patients with chronic renal failure undergoing hemodialysis.
4. To find out the relationship between the fatigue and quality of life among chronic renal failure patients undergoing hemodialysis.
5. To find out the association between the level of fatigue with selected demographic variables (age, gender, educational status, religion, nature of job, family monthly income and marital status).
6. To find out the association between the quality of life with selected demographic variables (age, gender, educational status, religion, nature of job, family monthly income and marital status).
7. To find out the association between the level of fatigue with selected clinical variables (Duration of illness, Hospitalization in chronic renal disease, taking self-medication, following prescribed diet for renal failure)
8. To find out the association between the quality of life with selected clinical variables (Duration of illness, Hospitalization in chronic renal disease, taking self-medication, following prescribed diet for renal failure)

Hypothesis:
All hypotheses were tested at 0.05 level of significant.
H1: The mean post-test fatigue score of patients with chronic renal failure who has received selected nursing intervention during hemodialysis in the experimental group will be significantly lower than their mean pre-test score of fatigue

H2: The mean post-test score of quality of life of patients with chronic renal failure who has received selected nursing intervention during hemodialysis in the experimental group will be significantly lower than their mean pre-test score of quality of life.

H3: The mean post-test fatigue score of patients with chronic renal failure who has received selected nursing intervention during hemodialysis in the experimental group will be significantly lower than their mean posttest fatigue level of the control group score

H4: The mean post-test quality of life score of patients with chronic renal failure who has received selected nursing intervention during hemodialysis in the experimental group will be significantly lower than their mean posttest quality of life level of the control group score.

H5: There will be significant relationship between the fatigue and quality of life among chronic renal failure patients undergoing hemodialysis

H6: There will be significant association between the mean posttest level of fatigue with selected demographic variables (age, gender, educational status, and religion, nature of job, family monthly income and marital status).

H7: There will be significant association between the mean posttest level of quality of life with selected demographic variables (age, gender, educational status, and religion, nature of job, family monthly income and marital status).

H8: There will be significant association between the mean posttest level of fatigue with selected clinical variables (Duration of illness, Hospitalization in chronic renal disease, taking self-medication, following prescribed diet for renal failure)

H9: There will be significant association between the mean posttest level of quality of life with selected clinical variables (Duration of illness, Hospitalization in chronic renal disease, taking self-medication, following prescribed diet for renal failure)

Review of literature:
literature review is organized and presented under the following headings.
1. Reviews on the overview of Renal Failure
2. Reviews related to burden/prevalence of Chronic Renal Failure
3. Reviews related to problems experienced by the patient with hemodialysis
4. Reviews related to Quality of Life among patients with Chronic Renal Failure on hemodialysis
5. Reviews related to Fatigue among patients with Chronic Renal Failure on Hemodialysis.
6. Reviews related to effects of selected nursing interventions (Dialytic Exercise and teaching on diet, medication, sexual relationship and follow up) on Fatigue and Quality of Life among patients with Chronic Renal Failure.
7. Reviews related to role of the nurses during hemodialysis.

Chronic renal Failure:
Renal failure (also kidney failure or renal insufficiency) is a medical condition in which the kidneys fail to adequately filter waste products from the blood. The two main forms are:
- Acute kidney injury, which is often reversible with adequate treatment, and
- Chronic kidney disease, which is often not reversible. In both cases, there is usually an underlying cause.

1. Literature and Studies related to Chronic Renal Failure:
Chronic kidney disease (CKD) is a major public health problem throughout the world. Chronic kidney disease affects an increasing number of populations and 15% of adults in the United States are estimated to have CKD by the Modification of Diet in Renal Disease (MDRD) [Jung and Park (2010)].

According to US Renal Data System, at the end of 2003 a total of 441051 people were being treated for end-stage renal disease; approximately 28% have a functioning transplant, 66% receive hemodialysis and 5.7% are undergoing a form of peritoneal dialysis (Joyce.M. Black 2009)

2. Reviews related to Burden/ Prevalence of CKD:
The pattern of disease burden in the 21st century has significantly shifted towards Chronic Diseases (CDs) [World Health Organization [WHO], (2008)]. Population aging and lifestyle-modifiable risk factors, accompanied by a decline in early-life infectious diseases, have resulted in the emergence of CDs as a major global health threat [WHO, (2005)].

CKD ultimately progresses to ESRD, the rate of which is dependent on coexisting pathologies and risk factors [Codreanu et al, (2006)]. The increase in CKD and its progression to end-stage renal failure worldwide are mainly a result of the rising global diabetes and HT pandemics [Yach et al, (2004); Beaglehole 2003)].

3. Reviews related to problems experienced by the patient with hemodialysis:
Complications of CKD worsen as renal failure progresses. Eventually, hemodialysis (HD) or peritoneal dialysis (PD) must be initiated to replace kidney function in most patients. Approximately 100,000 new patients began receiving HD in the United States in 2006; over 325,000 patients received hemodialysis treatments that year. These numbers accounted for approximately 92% of the total dialysis population.

Problems associated with Renal Failure Patients in dialysis: [Kessler et al., (2013)]:
Low blood pressure, Anaemia, Muscle cramping, Difficulty sleeping, Itching, High blood potassium levels, Fatigue, Biochemical imbalance, physiological changes, Neurological disturbances, Cognitive impairment, Sexual dysfunction.

Common Psychiatric Issues in Renal Failure and Dialysis Patients: (De Sousa., 2008):
Depression, Suicidal behaviour, Delirium, Anxiety and Panic symptoms (Extreme anxiety and anxiety somatic symptoms such as breathlessness, palpitations, chest pain, sweating and fear of dying may occur in renal failure cases

4. Reviews related to Quality of life among patients with Chronic Renal Failure on Hemodialysis:
Quality of life decreased in all stages of kidney disease. A reduction in physical functioning, physical role functioning is present in the different stages of kidney disease [(Maria Carolina., (2011)

5. Reviews related to Fatigue among patients with Chronic Renal Failure on Hemodialysis:
Fatigue is one of the most frequent complaints of haemodialysis patients and is associated with impaired health related quality of life. Fatigue is documented as a negative symptom experienced by a large number of patients with end stage renal disease undergoing haemodialysis. [Pendse., (2005)].

6. Reviews related to effects of selected nursing interventions (Dialytic Exercise medication, sexual relationship and follow up) on Fatigue and Quality of Life:
The need to identify and assess fatigue in patients receiving dialysis is vital to patient health and quality outcomes. Fatigue has frequently been unrecognized and therefore under-treated. Physical exercise, epoetin use and L-carnitine infusion have all been used successfully to alleviate fatigue in patients receiving hemodialysis

7. Reviews related to care of patient with Haemodialysis:
Atashpeikar., Jalilazar T., Heidarzadeh, M., (2012) Conducted a study on self-care ability in hemodialysis patients. According to them considering the numerous physical and psychological problems in hemodialysis patients, they are dependent on others in some daily activities and in fact, they do not have full self-care ability.

METHODOLOGY:
Research Approach:
Quantitative research approach is used for testing objective theories by examining relationship among variables.

Research design:
Quasi experimental non-equivalent pre-test, post-test control group design was used for the study.

Variables:
Dependent variables:
In this study fatigue, quality of life was the dependent variable.

Independent variables:
In this study selected nursing intervention is an independent variable which includes demonstration of dialytic exercises, planned teaching about hemodialysis care, dietary management, adherence to medication, and follow up, teaching on sexual relationship.

Research Setting:
The study has been conducted Madurai Kidney Centre and Transplantation Research Institute with chronic kidney disease, Lee kidney centre, Meenakshi mission hospital and research centre, Tamilnadu.

Population:
The population is the entire set of individuals or objects having some common Characteristics

Target Population:
The target population of the study was patients with CRF undergoing hemodialysis.

Sample:
(Patients who fulfilled the inclusion and exclusion criteria from Madurai Kidney Centre and Transplantation Research Institute with chronic kidney disease, Lee kidney centre, and Meenakshi mission hospital and research centre) were selected as study samples.

Sample Size:
In this study 100 samples were selected (50 in experimental group, 50 in control group)

Sampling Technique:
The convenient sampling technique was used for this study.

Criteria for sample selection:
Sample selection was based on the following inclusion and exclusion criteria.

1. Inclusion Criteria:
a. Patients undergoing hemodialysis within the age between 20 and 60 years.
b. Both male and female were included.
c. Patients undergoing hemodialysis who know Tamil or English.
d. Those that have moderate and severe fatigue in Piper Fatigue Scale score and poor quality of life score.

e. Chronic kidney disease patients who were on hemodialysis for more than 6 months.

2) Exclusion Criteria:
a. Patients with complications such as cardiac diseases and musculoskeletal problems.
b. Critically ill patient.
c. Mentally unstable.
d. Unwilling to participate.

Tools used for the study:
In the present study, 2 tools and 2 profiles (demographic and clinical profiles) were developed and used, which are discussed in detail as follows:

1. Part - I:
This section consists of demographic profile of the patient's age, gender, and educational status, and religion, nature of job, family monthly income and marital status.

2. Part - II:
Clinical profile of the samples like duration of illness, hospitalization in chronic renal disease, taking self-medication, following prescribed diet for renal failure

3. Part – III:
Piper fatigue scale is a universal tool. It will be used for measure subjective fatigue. It consists of 22 items that are numerically from 0 - 10.

4. Part – IV:
Quality of Life Assessment Tool:
Standardized tool to assess the quality of life by QOL SF 36 (SHROT FORM OF HEALTH SURVEY) WHO BREF SCALE.

## Analysis and Interpretation:
Analysis is a process of organizing and synthesizing data in such a way that research question can be answered and hypothesis tested:

Table 1: Assessment of fatigue and quality of life among chronic renal failure patients in both experimental and control group

S. No.	Level of fatigue (Score)	Experimental group(n=50)					
		Pre test		Post-test-1(15th day)		Post-test-2(30th day)	
		No (50)	%	No.	%	No.	%
1	None (0)	-	-	-	-	4	8.0
2	Mild (1-3)	-	-	12	24.0	40	80.0
3	Moderate (4-6)	17	34.0	33	66.0	6	12.0
4	Severe (7-10)	33	66.0	5	10.0	-	-
Control group(n=50)							
1	None (0)	-	-	-	-	-	-
2	Mild (1-3)	-	-	-	-	-	-
3	Moderate (4-6)	22	44.0	23	46.0	15	30.0
4	Severe (7-10)	28	56.0	27	54.0	35	70.0

Table 2: Distribution of chronic renal failure patients according to pre and post test level of quality of life in both experimental and control group.
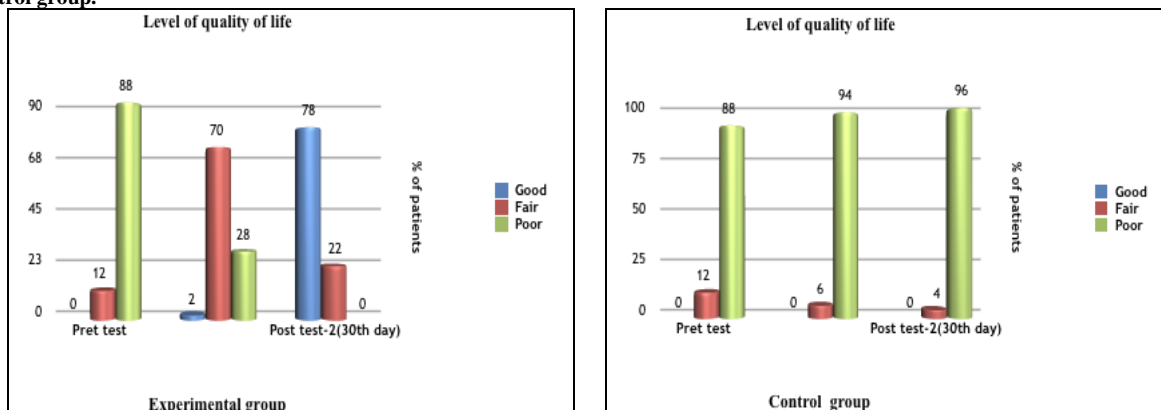
Table 3: Outcomes of unpaired t-test analysis of post-test fatigue and quality of life among renal failure patients in between experimental and control group.

S. No.	Measures	Experimental		Control		Unpaired t-value	p-value
		Mean	SD	Mean	SD		
1	**Fatigue**						
	Pre test	154.88	25.52	147.88	30.46	1.24[NS]	p>0.05
	Post-test-1 (15th day)	105.60	31.13	148.72	26.12	7.56*	P<0.001
	Post-test-2 (30th day)	46.64	27.26	157.76	25.08	20.82*	P<0.001
2	**Quality of life**						
	Pre test	20.08	3.92	19.38	5.59	0.724[NS]	P>0.05
	Post-test-1 (15th day)	27.42	4.14	18.58	5.01	9.61*	P<0.001
	Post-test-2 (30th day)	34.02	4.05	17.26	5.09	18.18*	P<0.001

Major findings of the study:

- Comparison of pre-test with 30th day post-test fatigue scores - 't' value 41.19*; P (< 0.001)
- Comparison between 15th and 30th day post-test fatigue scores - 't' value 25.58*; P (<0.001)
- Comparison of pre-test with 15th day post-test level of quality-of-life score - 't' value 16.32*; P (<0.001)
- Comparison of pre-test with 30th day post-test level of quality-of-life score - 't' value -23.76*; P (<0.001)
- Comparison between 15th and 30th day post-test quality of life score - 't' value -15.19*; P (<0.001)
- In experimental group, the correlation between fatigue and quality of life in post-test-1 (15th day) was r = - 0.372 and it was significant at p = 0.008. Similarly, the correlation between fatigue and quality of life in post-test - 2 (30th day) was r = -0.370 and it was significant at p=0.008. But in control group, the correlation in post-test-1 (15th day) was r= 0.099 and it was not significant. Similarly, the correlation in post-test-2 (30th day) was r = 0.168 and it was also not significant (i.e., p>0.05).
- There was statistically significant association between the level of fatigue and selected demographic variables like age (χ^2=8.854, df=3, p=0.042) and gender (χ^2=7.316, df=1, p=0.002) (ie., p<0.05)
- The variable age (χ^2=10.98, df=3) was significantly associated with quality of life at p=0.018(i.e., p<0.05) but the other variables gender, educational status, religion, nature of job and family monthly income were not significantly associated with post-test quality of life of the chronic renal failure patients at 0.05 level (ie., p>0.05).
- There was statistically significant association between the level of fatigue with selected clinical variables like duration of illness (χ^2=21.66, df=2, p=0.000) and the duration under medication (χ^2=11.09, df=1, p=0.000) with post-test (ie., p<0.05)
- The variables like, regular medication for renal disease (χ^2=7.28, df=1, p=0.004) and the duration under dialysis treatment (χ^2=10.05, df=1, p=0.001) were significantly associated with post test level of quality of life (ie., p<0.05)

Summary of the study:

Effectiveness of selected nursing interventions (includes planned teaching about care of patient with haemodialysis, demonstration of dialytic exercises, dietary management, adherence to medication, follow up, teaching on sexual relationship) on fatigue and quality of life (QOL) among chronic renal failure patients undergoing hemodialysis in a selected hospital at, Madurai.

CONCLUSION:

End stage renal disease is one such chronic disease causing a high level of disability in different domains of the patients' lives, leading to impaired QOL. Hemodialysis therapy is time-intensive, expensive, and requires fluid and dietary restrictions. Fatigue is a common symptom in patients with advanced kidney disease, with implications for quality of life (QOL) and clinical outcomes. Renal patients adjust the timing and intensity of their daily activities in order to accommodate their fatigue.

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