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"NURSE GUIDED INTERVENTIONS ON SUBJECTIVE WELLBEING AMONG THE PATIENTS UNDERGOING HAEMODIALYSIS -A SYSTEMATIC REVIEW

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ABSTRACT

Chronic renal failure (CRF) is a progressive, irreversible loss of kidney function, leading to metabolic imbalances, uremia, anemia, and endocrine disorders. Major causes include diabetes, hypertension, glomerulonephritis, and polycystic kidney disease. Hemodialysis is the primary treatment but imposes significant lifestyle restrictions, negatively impacting patients' physical and psychological well-being. Health-related quality of life (HRQOL) assesses a patient's physical, psychological, and social well-being, serving as a key measure of medical care effectiveness. End-stage renal disease (ESRD) and its treatments significantly affect HRQOL. Hemodialysis patients face numerous physical, emotional, social, economic, and psychological challenges, often leading to poor knowledge and diminished quality of life. Nurses play a crucial role in patient education, which is essential for self-care in areas such as vascular access, diet, fluid management, medications, complications, and psychosocial well-being. Educational programs have been effective in disease prevention and health promotion.

KEY WORDS: Nurse led intervention, effectiveness, haemodialysis, chronic kidney disease, stressors.

INTRODUCTION

Chronic kidney disease (CKD) is a common and rapidly increasing global public health problem, both in developing as well as developed countries. Chronic kidney disease (CKD) is defined as the condition of gradual loss of kidney function over several years. Here the estimated glomerular filtration rate (eGFR) declines to less than 60 ml/min/1.73 m2, and this condition persists for 3 months or more, irrespective of the cause. Kidney damage refers to pathologic abnormalities suggested either by imaging studies, renal biopsy, abnormalities in urinary sediment, or increased urinary albumin excretion rates. It is therefore observed that in the state of progressive loss of kidney function, ultimately End-stage renal disease (ESRD) is the last stage of chronic kidney disease. When kidneys fail, it means they have stopped working well enough for one to survive without renal replacement therapy (dialysis or transplantation). (American Kidney Fund, 2016).[1]

Chronic kidney disease (CKD) is a rising public health issue worldwide. Global Burden of Disease has conducted a study and estimated about 1.4 million deaths globally from deadly CKD in 2019. This is a 20% increase from 2010 and has become one of the largest causes of death. It is also quite shocking to note that the number is increasing alarmingly.[2]

According to the data available, the rapid rise in kidney diseases during the last few years has been so alarming that today the number of premature deaths of adults due to CKD is more than the deaths related to HIV/AIDS in our country. Subsequent GBD reports indicate that whereas CKD occupied 13th place among the list of causes of death, it rose to 12th place in 2017. It is predicted that it will become the 5th highest cause of death in the world by 2040.[3]

In India, recent studies have shown a variable prevalence of CKD ranging from 4% to 17.2% with wide regional differences.1.36 lakh adults die due to CKD which is more than AIDS. One lakh new CKD cases are reported every year. Earlier kidney ailments were found in the patients who were more than 50 years of age but now 40 % of CKD patients are in the age group of 30-40 years.[4]

The most common cause was diabetic nephropathy (44.6%) followed by hypertensive nephropathy (33.3%). The co-morbidities included hypertension (61.4%), diabetes (47.3%), cardiovascular disease (30.6%), chronic obstructive pulmonary disease (10%) malignancies (2.6%), and retinopathy (28%). The social security support system should be improved for our surroundings to facilitate dialysis and transplantation to minimize out-of-pocket expenditure.[5]

In a study in 2021, it was concluded that in renal failure patients on hemodialysis, it is necessary to do dialysis three times a week for all patients so that they get good control and improve their health. This would also result in decreased morbidity and mortality. [6]

Patients on hemodialysis use various strategies to cope with the stressors related to their disease and the treatment procedures. A Cross-sectional, descriptive study was carried out to achieve the aim of the study. The mean age was 48.5 + 16, 52.8 % were female and 23.6% had a university education. The duration of treatment was less than 4 years in 51.7% with a mean score of 5.8 + 5 and 47% of them had multiple comorbid diseases. Results of the study revealed that 50.7% experienced physiological stressors and 38% experienced psychosocial stressors. The psychological stressors include boredom (92.1%), complaints about the length of treatment (78.6.1%), frequent hospital admission (64.1%), changes in body appearance (57.3%), sleep disturbances (46.1%) and fear of being alone (43.7%). While the least frequent physiological stressors include the cost of treatment (3.4%), transportation to and from the unit (14.6%), uncertainty about the future (14.6%), and interference with a job (19.1%). The most frequently experienced physiological stressors included fatigue (78.7%), loss of body function (61.8%), muscle cramps (51.7%), itching (48.3%), and joint stiffness (47.2%).[7]

Educational interventions were proven by D'souza, et.al. (2018) to be quite effective among dialysis patients, improving their quality of life, self-care management, knowledge, biochemical parameters, and therapeutic adherence. Therefore, a multidisciplinary approach covering primary physicians, dietary advice, nursing, physical therapists and counselors using coordinated strategies prove to improve the patient's outcomes to a larger extent. It is of foremost importance to use coordinated strategies in educating patients to improve their physical and mental health. [8]

Having an understanding of the struggles of patients undergoing hemodialysis, the researcher feels certain that implementing Nurse guided strategies combined with health-related information through various information and education scheme will be effective in improving mental and physical wellbeing of the patients.

Therefore, the researcher sought to explore various researches on the nursing interventions for the patients undergoing Hemodialysis and develop a Nurse guided Intervention for them.

MATERIAL AND METHODS

The electronic databases searched included Medline Embase and CINAHL. The search terms relating to HRQoL included ‘stress’, ‘haemodialysis’, ‘chronic kidney disease, ‘quality of life’ and ‘knowledge’, ‘nurse led intervention’, ‘intervention’ and ‘patients. These terms were each combined with a further search term relating specifically to quality of life. These consisted Nurse-Led Intervention based on identified stressors in terms of efficacy and quality of life among the patients on haemodialysis with chronic kidney disease. Following this, two reviewers independently evaluated an assigned subset of articles using previously developed data extraction forms and quality appraisal tools. Each specific item on the quality appraisal tool was openly discussed to reach consensus.

INCLUSION CRITERIA

1. Article reported assessment of efficacy and effectiveness of interventions used for haemodialysis patients

2. Full Text articles

3. Articles of any design written in English

Exclusion Criteria

1. Non peer reviewed articles

QUALITY ASSESSMENT

Two reviewers evaluated methodological quality independently using SEO, which provides information on observational studies such as cohort studies, survey and cross-sectional studies. After the independent evaluation, two reviewers met to discuss the article. Each specific item on the quality appraisal tool was openly discussed to reach consensus. This process identified whether disagreements were related to facts or adherence to the defined standards. Then, two investigators independently extracted the data from each selected study using a structured data extraction form.

Table no.1

Sample	Patients suffering with CKD and undergoing haemodialysis
Exposure	Nurse led interventions
Outcome	Increase in knowledge, improvement in self-care practice & self-efficacy, and enhancing the Quality of Life of individuals.

RESULTS

Figure 1 Prisma Flow diagram depicted the inclusion of the articles. The total 200 articles were identified from the search databases; 120 duplicates were removed. 80 articles screened for the

eligibility against the criteria. Out of the 20 eligible articles, 10 studies matched with the criteria. The characteristics of the 10 articles for the review are explained in the table no 2.

Figure No. 1: PRISMA Flow Chart

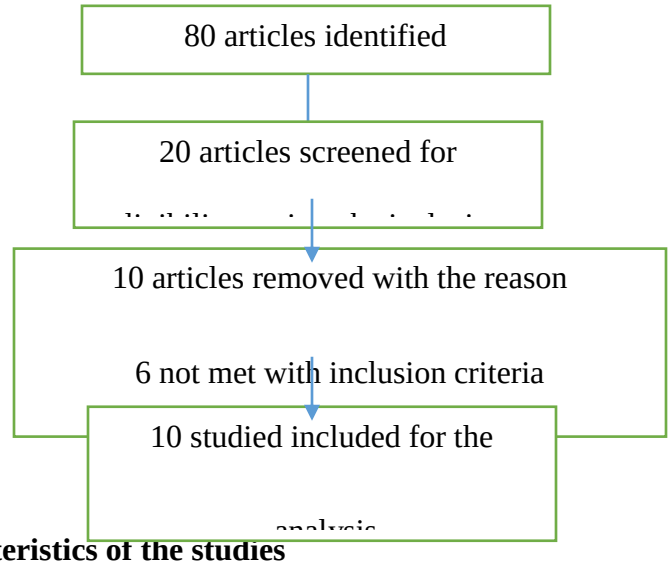

Table no. 2 Characteristics of the studies

Author	Study Type	Setting	Sample Size	Outcome
Farzad Poorgholami 2016	Randomized Controlled Trial	Jordan Iran	50	The quality of life of participants in both groups was assessed using the Ferrans & Powers Quality of Life Index Dialysis Version, both before and after the intervention. An independent sample t-test revealed no significant differences between the two groups across all quality-of-life subtypes prior to the intervention (P = 0.6). However, post-intervention results showed significant differences between the groups in the quality-of-life subtypes questionnaire, with the intervention group demonstrating higher quality of life scores compared to the control group (P < 0.001). This approach may also be

				recommended to enhance quality of life in patients with other chronic illnesses. [12]
Masoumeh Otaghi 2016	Triple-blind clinical trial	Iran	70	The mean score of depression, stress and anxiety in experimental and control groups showed no significant difference before the intervention. There is a significant difference between stress and anxiety in experimental and control groups in all intervals after intervention. [14]
Eilean Rathinasamy Lazarus 2019	Randomized Controlled Trial	Muscat Oman	150	The education and exercise intervention positively impacted the physical and mental well-being of patients with ESRD. Consequently, providing early education about renal disease to affected individuals enhances their quality of life and improves treatment outcomes for those undergoing dialysis. [11]
Hammad Ali Fadlalmola 2020	Quasi experimental study	Saudi Arabia	100	The educational program was proven to be effective in improving the knowledge of hemodialysis and the quality of life of patients receiving hemodialysis. The implementation of the educational program had a positive effect on the patients' overall knowledge regarding the concept of hemodialysis, vascular access care, complications, the dietary restrictions, fluids restrictions, types of medications and activities that can help the patients to adapt with disease and hemodialysis. [17]
Mehdi Amirkhani 2021	Randomized Controlled Clinical Trial	Iran	57	Resilience training helped decrease stress and anxiety in hemodialysis patients, leading to

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				an improved quality of life. Therefore, incorporating resilience intervention programs into the care and treatment plans for hemodialysis patients is suggested as a non-invasive, non-pharmacological, affordable, and complication-free approach. [9]
Mahlagha Dehghan 2021	Cross-sectional study, survey research design	Iran	144	The results of this study showed that corona virus anxiety and stress are common in hemodialysis patients. Mindfulness may be effective in reducing corona virus anxiety in hemodialysis patients. Therefore, interventions are suggested to increase the level of mind fulness and empower hemodialysis patients to cope with anxiety caused by crises such as the corona virus outbreak. [16]
Warih Andan Puspitosari 2022	Quasi-experimental pre-test and post-test study	Indonesia	58	The audio-visual progressive relaxation training conducted at least two times a week for three weeks effectively reduces stress levels in patients undergoing hemodialysis therapy for at least one month. [13]
M Priyadharshini 2023	A descriptive cross-sectional study	India Tamil Nadu	100	The findings of the study showed that the patient's undergoing hemodialysis has extreme severe depression, mild level of anxiety and stress. Patient using average level of coping strategies. The study pointed out the importance of reducing the depression, anxiety, stress and improving coping strategies among patients undergoing hemodialysis. [19]
Haya Ibrahim Ali	Randomized Controlled	Iran	42	Four randomized controlled trials demonstrated the

2024	Clinical Trial			effectiveness of Benson's relaxation technique as a nursing intervention for managing stress and pain in patients undergoing maintenance hemodialysis, showing a significant reduction in stress and pain levels. [10]
Feng Lin 2024	Meta analysis	Russia	1703	Twenty-four studies involving 1703 participants were analyzed. Music therapy significantly decreased anxiety (SMD: 0.72, 95% CI: 0.97 to 0.46, I 2 : 83%), pain (SMD: 1.22, 95% CI: 1.68 to 0.75, I depression (SMD: 0.85, 95% CI: 1.31 to 0.39, I 2 2 : 93%), : 77%), stress (SMD: 0.93, 95% CI: 1.17 to 0.68, I 41%), and adverse reactions associated with HD (SMD: 0.67, 95% CI: 0.88 to 0.46, I 2 2 : 0%), all showing strong effect sizes ($p < 0.001$ for all). However, no significant changes were observed in sleep quality, fatigue, satisfaction with HD, systolic or diastolic blood pressure, heart rate, or finger temperature. A slight reduction in respiration rate ($p = 0.0072$) and an increase in oxygen saturation ($p = 0.0056$) were noted. While music therapy showed promising results. [15]

Farzad Poorgholami et al analysed The Influence of Educational Interventions based on the Continuous Care Model on the Quality of Life of Hemodialysis Patients. The present study results showed that continues training leads to increased QOL in the intervention group. Their results demonstrated that the QOL in intervention group increased significantly after the educational program. The total score and also aspects QOL scores were higher in the experimental group other than control group. By applying continues care model in the experimental group the QOL scores improved significantly compared to control. [12]

Masoumeh Otaghi et al in their study illustrated that stress and anxiety in patients undergoing haemodialysis has reduced after the implementation of Benson's relaxation technique that is consonant with the results of various studies. In experimental group, moving away from

intervention and spending more months from the end of it, there was no statistically significant change in their level of stress and anxiety. In the second month after intervention, however stress and anxiety of the patients has a statistically significant difference compared with before intervention, there was not statistically significant difference in comparing with one month before intervention. It seems patients require continuous implementing the technique to reduce stress and anxiety. Thus, it is necessary for the patients to carry out the Benson's relaxation technique always and continuously. Relaxation is effective as a stress reducer and can reduce stress and anxiety in these patients partly.[14]

Eilean Rathinasamy Lazarus et al reported that the education and exercise intervention used was able to improve the physical functioning of patients on hemodialysis and this led improvement in their QOL. Other studies have also reported increase in QOL after an intra dialytic exercises. In this study factors such as middle age group, men, higher income, dialysis more than once/week, moderate anemia, low Serum Creatinine, and underweight BMI were significantly associated with QOL after intervention at 8 weeks among the intervention group. Other studies have reported factors closely similar to those mentioned above. For instance, better QOL means cores were observed among men who were married, working, good hemoglobin, low serum creatinine among patients within this study intervention group that participated in education and exercise showed better physical functional and QOL than the control group. These positive effects of participating in an education were seen after 8 weeks of dialysis treatment. Patients exposed to pre-dialysis education scored significantly better mood, less functional disabilities compared to the comparison group. Education improves knowledge and self-management and treatment efficacy. Physical exercise increased physical function among patients on haemodialysis and increased exercise capacity, improves muscle function.[11]

Haya Ibrahim Ali et al reported that, the implementation of the interventional educational program had a positive effect on the studied patients' overall knowledge regarding the concept of hemodialysis, vascular access care, complication, dietary restrictions, fluid restrictions, types of medications and activities that can assist the patients to adapt to the disease and hemodialysis. Results revealed that there was a significant increase in overall mean knowledge from 48.6% pre intervention of program to 86.3% post intervention of program. The interventional education program also improved the quality of life after its implementation. Specifically, the results revealed that there was a significant improvement in all domains of quality of life namely: health and functioning, social and economic, psychological/spiritual and family domain. Therefore, the interventional education program should be adapted by hemodialysis units in the county in order to ensure that patients receiving hemodialysis are knowledgeable about their disease and its management, as well as to ensure high levels of quality of life among these patients.[10]

Hammad Ali Fadlalmola et al The implementation of the interventional educational program had a positive effect on the studied patients' overall knowledge regarding the concept of hemodialysis, vascular access care, complication, dietary restrictions, fluid restrictions, types of medications and activities that can assist the patients to adapt to the disease and hemodialysis. Results revealed that there was a significant increase in overall mean knowledge from 48.6% pre intervention of program to 86.3% post intervention of program. The interventional education program also improved the quality of life after its implementation. Specifically, the results revealed that there was a significant improvement in all domains of quality of life namely: health and functioning, social and economic, psychological/spiritual and family domain. Therefore, the

interventional education program should be adapted by hemodialysis units in the county in order to ensure that patients receiving hemodialysis are knowledgeable about their disease and its management, as well as to ensure high levels of quality of life among these patients.[17]

Mehdi Amirkhani et al The results of the intervention show that resilience training significantly reduces stress ($P < 0.001$) and anxiety ($P < 0.001$) in hemodialysis patients, which is consistent with the findings of several studies conducted in this field. In the process of resilience training, people learn how to control the stress resulting from illness, and by influencing the thinking processes, it is possible to access resilient strategies. Therefore, they act as a protective shield in the face of stressful life events. The results of a study showed that resilience training had an effect on anxiety in burn patients. People with high resilience are calmer and more confident in the face of stressful events, so it is easier for them to control these factors. The results of another study showed that resilience training, if combined with telephone follow-up courses, could reduce the patients' stress and anxiety and improve their quality of life.[9]

Mahlagha Dehghan et al The results of this study showed that coronavirus anxiety and stress were among the most common and significant negative emotions in Iranian hemodialysis patients. Mindfulness may be effective in reducing coronavirus anxiety in hemodialysis patients, and spirituality has no effect on anxiety and depression. According to the obtained results, it is suggested to pay special attention to the constructs of mindfulness to increase the level of mindfulness, cope effectively with stresses and stressors, and empower hemodialysis patients. It is also suggested that other factors related to anxiety and depression in hemodialysis patients be evaluated in future research.[16]

Warih Andan Puspitosari et al Progressive relaxation techniques can reduce personal anxiety. Relaxation techniques can reduce stress levels among housewives. Progressive relaxation techniques effectively reduce stress and blood pressure. With only a few minutes of gradual relaxation, blood sugar levels can be lowered for patients who have type 2 diabetes mellitus. Relaxation exercises can effectively improve vital signs and reduce anxiety levels in open-heart surgery patients after endotracheal extubation. Progressive relaxation techniques can reduce pain, stress, and anxiety levels of hemodialysis patients, so they can provide calm. Colorectal cancer patients can use progressive relaxation methods to change their stress response and provide them with a great stress management source.[13]

M Priyadharshini et al study showed that the patient’s undergoing hemodialysis has extreme severe depression, mild level of anxiety and stress. Patient using average level of coping strategies. The study pointed out the importance of reducing the depression, anxiety, stress and improving coping strategies among patients undergoing hemodialysis. There is a need to carry out more research to detect strategies that can be effectively administered to reduce the psychological problems such as depression, anxiety, stress.[19]

Feng Lin et al suggested that their findings affirm the significant positive impact of music therapy on the psychological well-being of HD patients, with notable benefits in reducing anxiety, pain, depression, fatigue and stress. While the effects on physiological parameters were minimal, the overall evidence supports the integration of music therapy into comprehensive care strategies for HD patients, aiming to enhance the quality of life for patients undergoing HD. The combination of music therapy with other relaxation approaches, such as aromatherapy and Benson relaxation techniques, may provide synergistic benefits that enhance patient well-being.[15]

DISCUSSION

In this systematic review, we comprehensively evaluated the feasibility and effectiveness of Intervention based on stressors in terms of efficacy and quality of life among the patients on haemodialysis with chronic kidney disease. Chronic renal disease and hemodialysis present numerous psychological, social, cultural, and spiritual challenges for both patients and their families. Addressing these challenges effectively requires a holistic approach to patient support. Despite the efforts of family members and professional caregivers, many patient's express dissatisfaction with the support they receive, often perceiving it as inadequate. To better understand this issue, the researcher aims to explore the concept of support from the perspective of hemodialysis patients. Baodan Liaoet al reported Cognitive behavioral intervention (CBI) is a widely used psychotherapy that improves cognition by altering thoughts, beliefs, and behaviors to enhance mood and well-being. It has been applied in the nursing care of hemodialysis patients, with randomized controlled studies showing its effectiveness in improving quality of life, reducing depression, and promoting treatment compliance in end-stage renal disease patients.[20] Dr. Amutha Justin Jeya et al summarize that, People face different problems depending on their individual circumstances. Research findings indicate that selected nursing interventions effectively enhance quality of life and reduce fatigue levels. Nurses play a crucial role in providing physical, mental, and social support to address health issues and uplift patients' spirits.[21] Philippe Delmas et al an educational intervention (EI) based on Watson's Theory of Human Caring was developed and tested in pilot studies with rehabilitation nurses in Quebec and haemodialysis (HD) nurses in Switzerland. Following positive results, a new study in French Switzerland aims to further assess the EI's impact on HD nurses and patients, focusing on nurse-patient relationships, team cohesion, nurse quality of work life, and patient quality of life.[22] Victoria Alikari et al This study find the correlation between educational intervention - knowledge, adherence and QoL. Also find out the correlation between knowledge–adherence and adherence–QoL. Patient knowledge, adherence and quality of life was improved through educational intervention.[23] Through the reviews available related to effectiveness of nursing interventions, it is evident that these interventions are proved to be very useful for the betterment of the lives of many patients going through heamodialysis.

BIAS ASSESSMENT

A systematic review of published studies is limited by the fact that it excludes unpublished data and this may result in publication bias.

LIMITATION OF THE STUDY

Individual interest and financial constrains bias may be a limitation of this type of study although some observations suggest that this was not substantial. Subjective measurements by an individual of their own interests cannot be standardised by any yardstick other than the individual themselves.

CONCLUSION

The results of this systematic review indicate that findings of this study will have implications on nursing education, nursing research, clinical nursing and government agencies working among patients undergoing hemodialyss. These interventions will ensure the transformation in

the lives and QOL of these people who live life compromising their mental, social and physical health.

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