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Systematic Review on Quality of Life of Patients with Chronic Kidney Disease

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Abstract--- Background: *QOL is an overall assessment of a person's well-being, which may include physical, emotional, and social dimensions, as well as stress level, sexual function, and self-perceived health status. End-stage renal failure is a chronic disease that exerts a great negative impact on patients' health-related QOL mainly due to the accompanied impairment or to the imposed limitations in almost all domains of their daily lives. Despite remarkable advances in the treatment of HD, the patients encounter certain physical, psychological, economic, and social problems which affect their QOL.*

Objectives: *This review aims to examine systematically the impact of patient navigator training on Quality Of Life of Patients with Chronic Kidney Disease undergoing haemodialysis to identify: (i) QOL of patients with CKD undergoing Hemodialysis (ii) QOL of patients with CKD undergoing Hemodialysis in terms of Client centred health education, Meditation & progressive muscle relaxation technique.*

Methodology: *Searches were conducted across 10 electronics data bases consistent keywords. Papers were screened by the title and abstract (n=733) and judged against pre-defined eligibility (n= 26). Twenty six papers were included in the review.*

Results: *Different patient navigator training approaches were included such as client centred health education to improve knowledge related to disease condition; meditation program which includes pranayama, progressive muscle relaxation technique and mindful meditation which may indirectly impact on quality of life (Physical health, Psychological, Social relationships & Environment). Patient navigator training may improve Quality Of Life of Patients with Chronic Kidney Disease undergoing haemodialysis.*

Conclusion: *Few studies reported effect on QOL (n=18), the lack of a clear theoretical framework resulted in ambiguous predictions about training and its effect. Methodological issues also constrain the strength of the evidence, including; small samples sizes; an absence of blinding of participants, outcome assessors; and lack of active control groups.*

Keywords--- *QOL, Client Centred Health Education, Meditation, Progressive Muscle Relaxation Technique, Chronic Kidney Disease and Haemodialysis.*

I. INTRODUCTION

The term **chronic kidney disease** applies to the process of continuing significant irreversible reduction in nephron number. The dispiriting term end-stage renal disease represents a stage of CKD where the accumulation of toxins, fluid, and electrolytes normally excreted by the kidneys results in the uremic syndrome. This syndrome leads

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to death unless the toxins are removed by renal replacement therapy, using dialysis or kidney transplantation.[1] chronic kidney disease is an increasing public health issue. Prevalence is estimated to be 8–16% worldwide[2]

The evaluation of **quality of life (QoL)** in chronic diseases is becoming more and more important.[3] The assessment of QoL helps in evaluating the quality of care and efficacy of medical intervention, improving clinical decision-making, and estimating health care needs of the community.[4] Treatment modalities for end-stage renal disease affect quality of life (QOL) of the patients. Moreover, health care personnel can use QoL scores to evaluate the effects of a specific disease on patients and specific treatment besides the assessment of progress of patients. The different interventions could provide benefits by improving patient adherence to medications, which could help slow the progression of kidney disease through better BP control. Furthermore, through patient education, rates of follow-up with health care providers could be improved.[5]

Quality of life is an important criterion that illustrates the effectiveness of health care, health level, and well-being. It is a multidimensional concept that includes ability, function, health, well-being, and psychological state, which is defined by the World Health Organization as values, goals, standards, and individual interests.[6-8]There is a relationship between diseases and quality of life. Quality of life can have a direct impact on physical performance, emotional, and physical problems, fatigue, mental health, social performance, physical pain, and general health.[7-8] Therefore, knowledge about chronic diseases, especially chronic kidney diseases (CKD) is very important in the evolution of patients' health problems.

The role of nurses in imparting **education** about a proper diet to patients on **HD** is crucial. Patients on HD experience decreased quality of life (QoL) and significantly higher rates of malnutrition, inflammation, hospitalization and mortality compared with the normal population.[9] **Health educational** interventions which provide information about the nature of illness, exercise and relevant coping skills have also been used and found to enhance the physical and psychosocial well-being of patients with CKD[10] Therefore interventions which are able to enhance physical and mental functions can reduce hospitalization and mortality rates in CKD patients. The other interventions which have been used in this population have focused on education, social support, and self-care and these have been shown to raise coping skills among people on dialysis.[11]

Relaxation therapy techniques and mindfulness meditation are clinical intervention tools that have demonstrated benefits associated with the reduction of negative psychological states and the enhancement of positive states of mind critical to the alleviation of physical and emotional distress[12].

Meditation has been viewed as a potential intervention to decrease stress and anxiety and improve quality of life has seen an increase in popularity over the past decade. Meditation is an example of a mind-body intervention as it helps to influence the mind to adapt to the body’s physical symptoms through mechanisms of the parasympathetic nervous system and the decrease in stress hormone levels. Other mind-body interventions include relaxation techniques, hypnosis, yoga, psychotherapy, guided imagery, prayer, dance, music, and art therapy.[13] Pranayam-Yoga program is safe and effective measure as adjuvant therapy to conventional treatment modalities in reducing blood pressure, improving renal function, decreasing the need for dialysis, and improving QOL in patients with CKD. As

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CKD had a chronic course whether the results of our short-term study can be extrapolated to long-term benefits is yet to be explored.[14]

Objectives

This review aims to examine systematically Quality Of Life of Patients with Chronic Kidney Disease undergoing haemodialysis to identify:

(i) QOL of patients with CKD undergoing Hemodialysis
(ii) QOL of patients with CKD undergoing Hemodialysis in terms of Client centred health education, Meditation & progressive muscle relaxation technique.

Review Method

Data searches: A literature search was performed in the following electronic database: PubMed, CINHAL plus, Google Scholar, Research gate, Science direct, EBSCOhost, PsycINFO, SCOPUS, Web of Science, Shodhganga were used to search the literature for all publications from 2009 to 2019 (last 10 years).

Keywords used - "quality of life" or "health related quality of life " and chronic kidney disease* AND (training or intervention * or treatment or therapy or program*)

II. SEARCH STRATEGY

Inclusion criteria: **"PICO" framework**

Inclusion and exclusion criteria for article selection

Inclusion criteria: "PICO" framework

Population– Studies must have been conducted with children aged above 18 years

Intervention –Studies must have implemented any intervention that to improve quality of life with chronic kidney disease patients.

Comparisons –Studies must have a randomized controlled, quasi-experimental, or single case experimental design.

Outcomes –Studies must have at least one pre-and post-intervention measures of quality of life

Primary outcome- impact on quality of life

Secondary outcomes –improvement in QOL (physical health, psychological health, social and environmental domains)

The research paper only which directly belongs to quality of life with chronic kidney disease patient. The paper which is easily accessible online and full text available.

The studies which are carried out in English language.

Exclusion criteria

The study concern to chronic kidney disease patient receiving haemodialysis

The studies which are duplicate and result are ambiguous.

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The research study which is published in without ISSN No journals.

The research studies which are not available on journal database.

The research studies in which only abstract is available.

The studies which is published in local language.

Study Selection

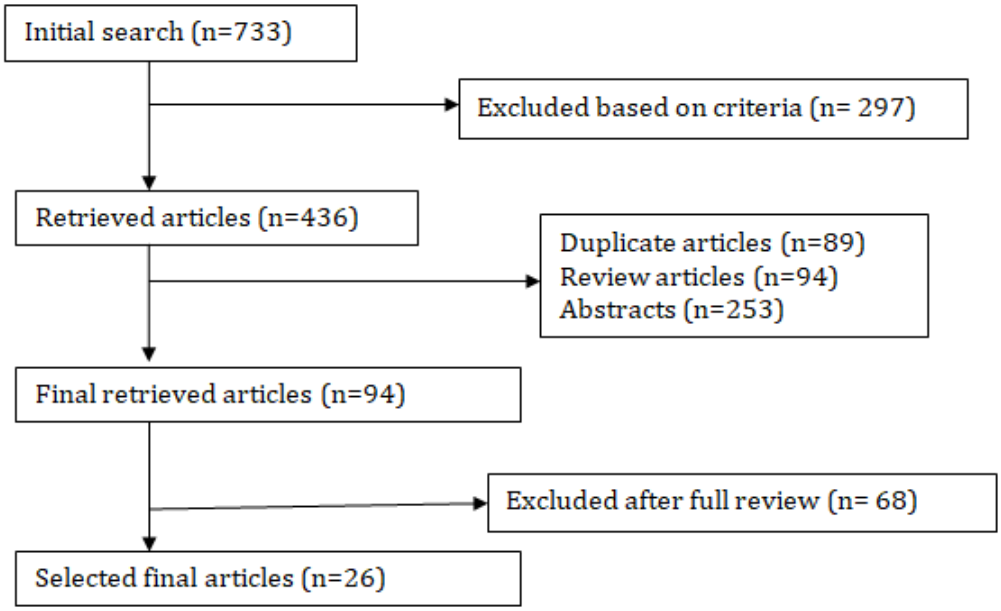

Figure 1- Flow diagram of search strategy with reasons of exclusion.

To start with from below listed search engines total 733 articles were received; from that 297 articles were excluded bases on exclusion criteria. So total retrieved articles were 436 among all 89 duplicate articles, 94 review articles and 253 abstracts were excluded. Final retrieved articles were 94; among them 68 full articles were excluded based on inclusion criteria. Finally, 26 were included in the review.

III. RESULTS

All included studies have been classified into four intervention types –

1. **Quality of life among CKD patients undergoing haemodialysis (n=8):** Eight studies reviews here investigated the existing quality of life of patients undergoing haemodialysis with chronic kidney disease.
2. **QOL of patients undergoing haemodialysis in terms of Client centred health education, Meditation & progressive muscle relaxation technique (n=18):** Interventions divided into below 4 categories.
    1) **Client centred health education (n=4):** Four interventions related to health education on disease process, prognosis, nutrition and diet.
    2) **Meditation (n=6):** Wide range of meditation and yoga showed effectiveness on improvement of quality of life in all domains. It has been suggested systematic regular meditation may benefit for CKD patients to improve quality of life.

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3) **Progressive Muscle relaxation Technique (n=5):** Five studies suggested progressive muscle relaxation technique in organized manner can create impact on physical health of an individual.

4) Patient navigator training (n=3): Three interventions involved repeated combine practice may produce progressive effect on quality of life. Multidimensional combination of different intervention like health education, regular meditation activities and relaxation techniques may create positive effect on quality of life of patients with chronic kidney disease.

Table 1: Summary of Characteristics of all Included Studies in Review (n=26)

Article/ Ref No	*Study Title*	*Country*	*Year of study*	*Sample*	*Study Type*	*Methodological aspects*	*Findings*
QOL of patients with CKD undergoing Hemodialysis							
1/15	Predictors of Quality of Life in Haemodialysis Patients	Ismailia, Egypt	January 2007 to January 2008	100 HD patients 53: Males 47:Females	A cross - sectional descriptive design	SF-36 and KDQoL-SF forms covering six domains of QoL, namely physical, emotional, social, illness impact, medical and financial satisfaction, and overall general health	Quality of life is reduces in all the health domain of haemodialysis patient. Aged male, unemployment and duration of dialysis adversely affect the quality of life score. A novel approach needed to influence patient outcomes.
2/16	An assessment of the quality of life in hemodialysis patients	Mysore , India	October 2008	75 : HD patients	A cross-sectional study	The WHOQOL-BREF questionnaire was used to assess the quality of life. The quality of life of hemodialysis patients was found to be significantly impaired ($P < 0.05$) in comparison to healthy individuals of the general population, particularly with respect to the physical, psychological, and social relationship domains. In comparison to the quality of life of renal transplant patients, the quality of life of haemodialysis patients was significantly ($P < 0.05$) lower in all the four WHOQOL-BREF domains.	The quality of life of hemodialysis patients was found to be considerably impaired when compared to that of healthy individuals of the general population as well as of renal transplant patients.
3/17	Dialysis-Related Factors Affecting Quality of Life in Patients on haemodialysis	Lahore, Pakistan	2011	175: HD patients	Cross-sectional study	Data collected on patient on maintenance haemodialysis for more than 3 months at 3 dialysis centres of Lahore. The QOL index measured using the World Health Organization QOL questionnaire, with higher scores corresponding to better QOL of patients.	QOL of haemodialysis patients is poor as compared to caregivers of the patients, especially that of diabetics. Also, duration of dialysis had a reverse correlation with QOL.
4/18	Assessment of Quality of Life in Patients on Haemodialysis and the Impact of Counselling	Kochi, Kerala, India	2012	50 patients 25: Experimental Group 25: Control Group	A hospital-oriented prospective, longitudinal, observational comparative study	QOL of patients on haemodialysis by using the World Health Organization Quality of Life assessment scale for six months in the nephrology department of a tertiary care hospital. Patients who were	There is an increase in score in all the four domains (physical, psychological, environmental and Social) among the test group when compared with the

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						receiving HD regularly and aged between 20 and 80 years were included in the study.	control group. Also, found that the Psychological domain shows significant increase in score compared with others. Findings demonstrate that patient counselling plays an important role in improving the QOL.
5/19	Assessment of Quality of Life In Chronic Kidney Disease Patients	Chennai, Tamil Nadu, India.	July 2014	50 patients	Observational and prospective	Observed by using kidney disease QOL short form TM (KDQOL-SFTM) questionnaire.	Findings revealed that ESRD patients have a poor QOL and most the affected domain is PH, hence measuring and monitoring These aspects of QOL could lead to a more patient-centered care and improve the health and well-being among patients with chronic renal failure.
6/20	Assessment of health‐related quality of life of hemodialysis patients	Benha, Egypt	December 2015	228:HD patients	A cross-sectional study	Data collected by aquestionnaire that included demographic, social, and medical questions. KDQOL SF (36) as a tool for assessment of HRQOL.	HRQOL in the hemodialysis patients relatively low. The most important comorbidities affecting quality of life were eanemia, HCV infection, and diabetes.
7/21	Quality of Life of Patients Undergoing Hemodialysis	Tamil nadu, India	January 2017	130 : HD patients	Cross-sectional research design	KDQOL - short form version 1.3 scale used for the study to collect the demographic variable and data.	Concluded that patients on HD not having adequate QOL in all domains except patient satisfaction due to changes in the physiological, chemical changes occur in the kidney.
8/22	The impact on quality of life of dialysis patients with renal insufficiency	Poland	2018	140 dialysis patients 100 : HD 40 : PD	Observational and prospective	The questionnaire used for data collection by Kidney Disease and Quality of Life Short Form version 1.2 (KDQOL – SF 1.2)	Patients receiving peritoneal dialysis assessed their QoL in its different dimensions as much higher than patients receiving hemodialysis. The data also conclude that will to live was more highly assessed by patients receiving peritoneal dialysis as compared to patients receiving hemodialysis.
QOL of patients with CKD undergoing Hemodialysis in terms of Client centred health education							
9/23	The Impact of Education on Nutrition on the Quality of Life in Patients on Hemodialysis: A Comparative	Urmia, Iran	2012	70 : HD patients 35: Experimental Group 35: Control Group	A quasi experimental study	Seventy patients on maintenance haemodialysis divided into two groups; both groups requested to fill in the validated SF-36 questionnaire on QoL.	The QoL considerably diminished in HD patients. One of the methods for this is education about their nutritional program, which can be used for other

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	Study from Teaching Hospitals						chronic diseases too.
10/24	The effect of education of health-promoting behaviours on lifestyle in haemodialysis patients	Iran	2014-15	70: HD patients	Quasi-experimental study	Haemodialysis patients in two groups: control [35] and experimental [35]. For groups of six 30-minute sessions on an individual basis during haemodialysis, held over three weeks in a row.	Teaching with an emphasis on health-promoting behaviours, haemodialysis patients was improved lifestyle.
11/25	Effectiveness of education and exercise on quality of life among patients undergoing hemodialysis	Muscat, Oman	October 2017	150 HD patients 75: in intervention 75: control group	A randomized controlled trail	Laptop assisted interactive health education and supervised the exercise during dialysis given in vernacular language for 25 mins to the experimental group. Data collected through Research and Development health-related kidney disease QOL (KDQOL) questionnaire	The education and exercise intervention have a positive effect on the physical and mental health well beingof patients with chronic kidney disease.
12/26	The effect of an educational program on quality of life in patients undergoing hemodialysis	Western Saudi Arabia	2019	100 : HD patients	A randomized interventiona l study design	100 HD patients recruited and randomly assigned to control group(50) and interventional group (50) from four different hospital data collected by HRQOL SF-36. Health education (twice a week, total duration of 8 weeks, 30 minutes each session) sessions which focus on an introduction to chronic renal disease, explaining HD, how it works, and why it is important to receive and to comply to HD conducted to the participants.	The scores of HRQOL for HD patients were low. The educational program had significant positive impact on all health-related quality of life parameters.
QOL of patients with CKD undergoing Hemodialysis in terms of Meditation							
13/27	Effects of 6 months yoga program on renal functions and quality of life in patients suffering from chronic kidney disease	Meerut, India	2009-2010	54 patients	Prospective study	In experimental group (25) trained to perform yogic asanas for at least 5 days/week for 40-60 mins/day. Control group (25) on conventional therapy. Both group assess by quality of life (QOL) indicators with 6 months follow up.	Yoga program is safe and effective as an adjuvant therapy in improving renal functions and QOL of CKD patients.
14/28	Role of Yoga in Chronic Kidney Disease:	Bangalor e, India	2014	A Hypothetica l Review	A Hypothetical Review	Different studies suggested that there is a strong association of oxidative stress, chronic inflammation and psychological stress with CKD. In several studies, it has been reported that yoga has significant role in the management of non-communicable diseases like diabetes, hypertension, coronary heart diseases etc. Regular yoga practice can help control sugar levels in diabetics, blood pressure in hypertensives and reduce the risk of cardiac complications in patients with heart diseases	Review suggested that yoga has promising role in the primaryand secondary management of CKD as an adjuvant. These researches and based on this present a yoga module useful in CKD along with necessary precautions to be taken while doing yoga.
15/29	Improving	CA,	2017	A	A systematic	Meditation, as part of more	The studies have

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	wellbeing in patients undergoing dialysis: Can Meditation Help?	USA.		systematic review Study	review Study	rigorous and physically active programs, has been shown to be useful in dialysis contexts. Likewise, meditation alone may even benefit cognitive impairment in end-stage kidney disease patients.	shown varied results, though most have reported positive effects of meditation on measures such as anxiety, stress, depression, sleep disorders, quality of life and improve experience of undergoing dialysis. "Can Meditation Help the Wellbeing of Dialysis Patients?" the systematic review response is an optimistic "yes."
16/30	Mindfulness Meditation Practice During Hemodialysis	U.S.A	2017	50: HD patients	Randomized control trial	In experimental group Mindfulness meditation practice based on relaxation, well-being promotion, meditation practices and positive psychology principles. The program is being evaluated in haemodialysis session for 12 weeks, for 15 -25 minutes, 3times/week.	Improvement of symptoms of depression, stress, quality of life, sleep disorders, biochemical parameters resulting from better adherence to treatment and Improvement of symptoms of quality of life
17/31	Brief Mindfulness Meditation for Depression and Anxiety Symptoms in Patients Undergoing Hemodialysis	Canada	2017	41:HD patients	Randomized control trial	41 patients; 21 experimental and 20 controls. Experimental group received 8 week, individual chair side meditation for 10-15 minutes 3times/week during haemodialysis.	Mindfulness meditation appears to be feasible and well tolerated in patients on haemodialysis with anxiety and depression symptoms
18/32	The effect of mindfulness program on general health of patients undergoing hemodialysis	Iran	2018	60:HD patients	Clinical trial (IRCT20170 53134263N1)	In experimental group received 8 sessions of mindfulness training and education session. The control group received only 8 sessions of education in relation to ESRD and HD. Immediately after and 1 Month after the intervention, the General Health Questionnaire assessed by both groups.	Mindfulness is effective in reducing physical and anxiety symptoms, sleep disorder, social dysfunction, and depression symptoms. Hence, the use of mindfulness as a complementary treatment can improve the general health level in these patients.
QOL of patients with CKD undergoing Hemodialysis in terms of progressive muscle relaxation							
19/33	The effect of progressive muscle relaxation training on anxiety levels and quality of life in dialysis patients.	Turkey	2006	46: Dialysis patients	Quasi-experimental study	Sample collected by patient recognition form, state and trait anxiety inventory and QoL – index for dialysis patients. Progressive muscle relaxation technique administered for 6 weeks.	PMRT for dialysis patients helps decrease state- and trait-anxiety levels and has a positive impact on QoL.
20/34	The effects of an interventional program based on self‑ care model on	Iran	2012	32 : HD patients	A quasi‑ experimental study	The self‑ care: partnership care model used for intervention. This model consists of four stages: (1) Motivating, (2) Preparing,	Implementing the self‑ care model increased the quality of life of haemodialysis patients. It is recommended for the

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	health‐related quality of life outcomes in hemodialysis patients					(3) Involving, and (4) Evaluating. Required data collected by the Short Form‐36 (SF‐36) standard questionnaire and a researcher‐made questionnaire.	use of this model in haemodialysis patients.
21/35	Effect of Progressive Muscle Relaxation and Aerobic Exercise on Anxiety, Sleep Quality, and Fatigue in Patients with Chronic Renal Failure Undergoing Hemodialysis	Iran	2016	100:HD patients	Double-blind clinical trial	Progressive muscle relaxation technique, aerobic exercise and control given for 60 days. Questionnaires of anxiety, sleep quality and fatigue completed by participants before and after interventions.	PMR compared to aerobic exercise in improving the symptoms of anxiety, sleep disorders, quality of life and fatigue in haemodialysis patients
22/36	Effectiveness of Intra-dialytic Exercise on Dialysis Adequacy, Physiological Parameters, Biochemical Markers and Quality of Life – A Pilot Study	Tamil Nadu, India	March to May 2017	20 : HD Patients	Experimental research design	Experimental group received intra-dialytic exercise session for 3 times/week by using bicycle ergometer for 12 weeks during the first 2 h of HD besides receiving routine care compared to the control group	The prescribed intra-dialytic exercise intervention resulted in significant improvement in Kt/V, serum creatinine, blood urea, serum potassium, phosphorous, and quality of life with no adverse effects. This exercise program is safe complementary intervention and do not cost the patient extra time.
23/37	Effect of Multidimensional Educational Interventions Among Dialysis Patients	Karnataka India	2018	A systematic review Study	A systematic review Study	Multidimensional Educational Interventions : Effectiveness of Nutritional Intervention and Fluid Restriction on Patient Outcomes, Exercise Counselling and Patient Outcomes, Medication Counselling and Patient Outcomes, Quality of Life and Self-Care Management	Individual discipline proven educational interventions effective among dialysis patients to improve quality of life, self-care management, knowledge, biochemical parameters and therapeutic adherence. It is recommended thatmultidisciplinary approach covering dietary, nursing, primary physician, physical therapist and counsellor using coordinated strategies can aim and prove to improve the patient's outcomes to larger extents.
QOL of patients with CKD undergoing Hemodialysis in terms of Patient Navigator Training							
24/38	Development of a chronic kidney disease patient navigator	U.S.A	2012-13	2 : CKD Patients	Randomized control trial	CKD Patient navigator program included General patient navigator training, CKD education and EHR training in 5 institutions awarded a	**CKD patient navigator program CKD navigator hiring**: The appropriate personal and computer skills

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	program					grant to pilottranslational CKD interventions. CKD education provided by nurse practitioner during dialysis in 4 sessions 1 hour in each session about basic care of fistula and disease process.	outlined to meet the needs of the program **CKD patient navigator training:** Aim of the observation to make the patient navigator aware of the complexity of CKD, chronic disease management, and patients themselves so they may provide guidance and work with the patient and team to achieve the best possible outcome for the patient.
25/39	Pragmatic Randomized, Controlled Trial of Patient Navigators and Enhanced Personal Health Records in CKD	U.S.A.	2017	209 patients	2*2 factorial design into four-study groups	Randomly in a 2 * 2 factorial design into four-study groups: (1) Enhanced personal health record only, (2) Patient navigator only, (3) Both, and (4) Usual care (control) group. Primaryoutcome measure was the change in eGFR over a 2-year follow-up period. Secondary outcome measures included acquisition of appropriate CKD-related laboratory measures, specialty referrals, and hospitalization rates.	Patient navigator program enhanced personal health record for the CKD population. Larger and long-term studies along with cost-effectiveness analyses are needed to evaluate the role of patient navigators and patient education through an enhanced personal health record in those with CKD.
26/40	Patient navigators for people with chronic disease: A systematic review	Canada	2017	A systematic review Study	A systematic review Study	Searched MEDLINE, EMBASE, CENTRAL, CINAHL, PsycINFO, and Social Work Abstracts from inception to August 23, 2017. Also searched the reference lists of included articles.	Findings indicate that patient navigator programs improve processes of care, although few studies assessed patient experience, clinical outcomes or costs.

IV. DISCUSSION

The aim of this review was to examine systematically the impact of Patient navigator training on Quality of Life of CKD patients undergoing hemodialysis

The first objective was to assess the Quality of Life of CKD patients undergoing hemodialysis. A systematic search of 8 studies encompassing a range of quality of life

Many of the studies clearly suggested that quality of life is compromised among patients of chronic kidney disease undergoing hemodialysis. In particular, quality of life of patients undergoing hemodialysis is more affected than undergoing peritoneal dialysis.

The second objective was to identify Impact of patient navigator training in terms of Client centred health education & Meditation on QOL. A systematic search of 18 studies in regards to health education 4 studies,

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meditation 6 studies, progressive muscle relaxation technique 5 studies and patient navigator training 3 studies. Preliminary evidence suggesting that health education specific to the disease process improves their understanding and their vision towards the disease. A number of interventions reviewed those significant benefits by systematic meditation practice in improvement in all domains of quality of life. The effective progressive muscle exercise improves muscle cramp during dialysis procedure which indirectly improves physical health- domain of quality of life. Collectively all intervention together make one program like patient navigator training to improve quality of life of patients with CKD undergoing hemodialysis

V. CONCLUSION

Diverse intervention applied within CKD patients undergoing hemodialysis in everyday context have produces improvements in their quality of life and have potential to produce near far effects. It's a challenging for patients with CKD undergoing hemodialysis. There are numbers of vital interventions combination can be highly effective to improve QOL of CKD patients. Client centered health education; meditation and progressive muscle relaxation technique combining as a one interventional program which may directly and indirectly create an impact on quality of life beneficial.

VI. LIMITATIONS

Several methodological factors may limit confidence in the findings of this review including;

The risk of bias in individual studies due to the frequent lack of control of confounding variables,

Small sample sizes and Absence of blinding of participants and outcome assessors.

Lack of active control group

Absence of a clear theoretical framework in many included studies

VII. RECOMMENDATION

- Future studies need to be more rigorous in study methodology including active control group and randomized controlled designs.

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