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Awareness Among Medical Professionals about the Role of Physiotherapists in Patients with Chronic Renal Failure

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Abstract

Background: Chronic Renal Failure (CRF) is a significant health issue that has impacted millions of adults and elderly individuals. CRF arises from numerous miscellaneous conditions that irreversibly alter the function and structure of the kidney over months or years. It is non-recoverable and affects the body's systems. Complications of CRF affect the patient's quality of life, so physical rehabilitation plays a crucial role in enhancing quality of life. **Materials and Methods:** A self-administered questionnaire was developed, validated, and distributed as a Google form and circulated to medical professionals, including doctors and nurses, via social media platforms. The Data was automatically calculated using a Google spreadsheet. **Results**: 100 medical professionals filled out the questionnaire, of which 24 were doctors and 76 nurses. Among all participating medical professionals, 58.5% were cognizant of the role of physiotherapy in chronic renal failure, doctors were more aware than nurses. **Conclusion**: Medical professionals are less aware so, it is imperative to implement measures aimed at enhancing awareness about the role of physiotherapy in managing patients with CRF, as part of the management of complications and symptoms within the framework of a multidisciplinary team.

Keywords: Awareness**,** Chronic Renal Failure, Medical Professionals, Physiotherapy

1. Introduction

A significant health concern affecting millions of adults and elderly individuals is Chronic Renal Failure (CRF). CRF is the result of diverse pathways of complaints that, over the course of months or years, permanently damage the structure and function of the kidney[1]. It is irreversible and impacts all of the body's systems. A continuous decline in kidney function and structural renal damage that impair an individual's quality of life are essential for a CRF diagnosis[2]. The best indicator currently available for determining fluctuations in overall kidney function is the Glomerular Filtration Rate (GFR), which measures the total volume of fluid filtered through all active nephrons in a given time period. Although CRF's classification and definition have changed, but the current international guidelines define CRF as decreased kidney function with a GFR of less than 60 ml/min per 1.73 m^2 or markers of kidney damage[3].

CRF can be considered a syndrome with adverse effects on systems in the body, including cardiovascular, nervous, respiratory, musculoskeletal, immune, and endocrine systems[1].Well-known health conditions that result from CRF, such as high blood pressure, diabetes mellitus, malnutrition, bone disorders, and heart vessel disease, have a significant impact on physical function and quality of life in CRF patients[2]. Symptoms related to physiotherapy in CRF include muscle weakness, reduced

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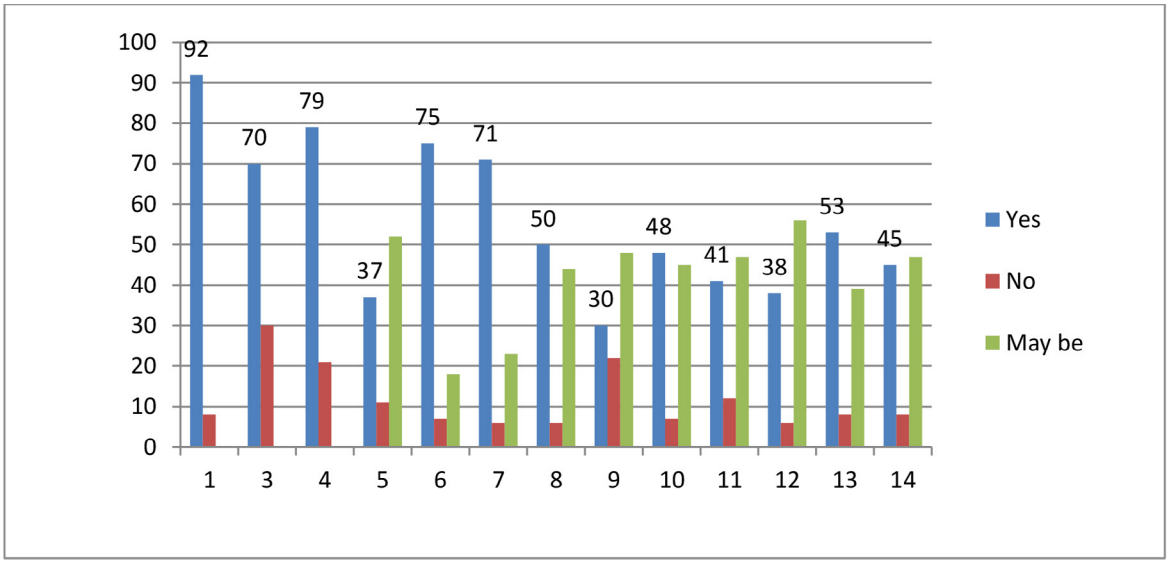

Graph 1. Awareness in medical professionals about the role of physiotherapy in chronic renal failure patients.

exercise tolerance, malnutrition, myopathy, neuropathy, decreased muscle strength, decreased endurance, cardiac and vascular dysfunction, decreased aerobic capacity, and psychological and behavioral changes.

CRF directly affects the respiratory system, characterized by airflow limitation, obstructive disorders, decreased pulmonary diffusion capacity, decreased endurance, and respiratory muscle strength.

Individuals with CRF on dialysis are more prone to experiencing cardiovascular complications. Reduced Heart Rate Variability (HRV) can result caused from microalbuminuria and macroalbuminuria, along with a decreased glomerular filtration rate. Factors such as age, diabetes mellitus, sedentary lifestyle, and arterial hypertension can influence low autonomic cardiac modulation[1]. In patients undergoing dialysis, there is a low peak oxygen uptake (VO_2 peak). This decline is influenced by multiple factors, including anemia, cardiac dysfunction (reduced contractility, increased anterior and posterior load), vascular dysfunction (limited reach of cardiac output to skeletal muscle), skeletal muscle anomalies (decreased fiber type, capillary density, mitochondrial density, and increased diffusion distance), metabolic anomalies, and autonomic dysfunction[4].

In CRF the musculoskeletal system is the second-most affected physiological system. Uremic muscle loss in CRF patients is intricate and advances similarly to sarcopenia[1]. The staging of sarcopenia encompasses not just the reduction in muscle mass but also considers the influence of inadequate body composition on muscle strength and mobility[2] Muscle weakness is a common symptom resulting from factors like hormonal imbalance, malnutrition, chronic anemia, lifestyle changes, loss of muscle mass, and weakness due to muscle fiber atrophy. This detrimental complication promotes to a sedentary lifestyle, deteriorates quality of life, and heightens the risk of cardiovascular complications[5].

In case management of individuals with CRF involves an interdisciplinary care team, encompassing renal care along with physical medicine, radiology, and nutritional services. Sarcopenia due to CRF is linked to malnutrition, osteoporosis, mobility limitations, and increased risk of falls. A physiotherapist plays a crucial role in the plan for CRF patients.[6] Physiotherapy exercises as key factor and patient education plays important role in lifestyle modification and prevention of metabolic disorder and cardiac risk factors.[7] Exercises like aerobics, cardio respiratory and endurance training, flexibility, strength training can be used for training.[8]

Glomerular Filtration Rate (GFR), which measures the total volume of fluid that is filtered through all of the active nephrons in a given amount of time, is the best indicator index currently available for determining increases and decreases in overall kidney function. Over time, CRF's classification and definition have changed, but the current international guidelines define CRF as decreased kidney function shown by a GFR of less than 60 ml/min per 1.73 m^2, or markers of kidney damage. According to international guideline criteria for CRF, it involves either one or both of the following criteria for a duration of at least 3 months: 1) GFR: <60 ml/min per 1.73 m^2 2) Markers of kidney damage (1 or more): Albuminuria

(albumin: creatinine ratio [ACR] ≥30 mg/g), Urinary sediment abnormality, Electrolyte or other abnormality due to tubular disorder, Structural abnormalities detected by imaging; History of kidney transplantation[3]

Muscle wasting and weakness are prevalent issues among renal patients with CRF, especially considering the age and cardiovascular or diabetic complications often present. Patients with CRF typically have approximately 50% less exercise capacity as compared to healthy, sedentary individuals. Addressing this disparity is crucial, and physiotherapists are well-positioned to provide and initiate prescribed exercise rehabilitation for these patients. The deconditioning linked to the progression of kidney disease is exacerbated by various factors, including peripheral muscle, cardiac, nutritional, and psychosocial dysfunction. In dialysis patients, a diminished ability to exercise significantly impacts not only their quality of life but also morbidity and mortality[9–14].

Complications arising from CRF significantly impact patient's quality of life, emphasizing the need for physical rehabilitation to enhance it. This awareness is essential to assess how many medical professionals recognize the role of physiotherapists in managing CRF patients. Physiotherapist proves effective in promoting physical activity and fitness, enabling patients to return to their occupational lives. It is crucial for medical professionals to be aware of these benefits, contributing to increased awareness within the healthcare community.

2. Material and Methods

Design: It was a cross-sectional study of the survey type.

Participants: For this study, (n=100) medical professionals, including both male and female doctors and nurses connected to the renal unit, were included.

Centers: It was conducted in Krishna Hospital and medical research center Karad.

Outcome measures: The survey was conducted online using a self-administered questionnaire and validated by physiotherapists, with open-ended and closed-ended options, and shared using social media, Gmail, and What's App as a link to a Google Form for a period of one month.

3. Result

It was a cross-sectional study conducted in Krishna Hospital and medical research center Karad. The survey took place online using the social media platform by sharing a Google Form questionnaire link, and responses were collected. Results were computed directly through a Google spreadsheet and transformed into a master chart in terms of frequency distribution and response. (n=100) Medical professionals, including MBBS doctors and nurses, completed the Google Form questionnaire and submitted responses. Among all participants, 70% were female, and the remaining (30%) were male. Medical professionals, including doctors (24%, n = 24) and nurses (76%, n = 76), participated in the survey.

3.1 Awareness of Physiotherapy

Medical professionals who took part in the study responded to all questions. 92% (n = 92) of medical professionals knew about physiotherapy services, while 8% (n = 8) did not. There were varied responses, showing more awareness about what treatment a physiotherapist provides. 90% (n = 90) of medical professionals are aware of exercise and electrical modalities, and 4% (n = 4) are less aware by saying only massage and medicines are prescribed by physiotherapists. Only 2% (n = 02) of medical professionals responded with no option, which means they were totally unaware. There are different specialties under physiotherapy, of which 70% (n = 70) of participants knew about them and 30% (n = 30) had less knowledge of them. A good number of medical professionals, 79% (n = 79), refer patients for physiotherapy treatment, and 21% (n = 21) do not refer patients for physiotherapy.

3.2 Awareness about the Role of Physiotherapy in Chronic Renal Failure Patients

Benefits of physiotherapy in CRF patients poorly 37% (n = 37) of medical professionals agreed, 11% (n = 11) disagreed, saying there is no role, and 52% (n = 52) are still confused about the benefits of physiotherapy treatment. With a large figure, 71% (n = 71) of medical professionals are aware and 7% (n =7) are not aware of physiotherapy treatment for muscle weakness and fatigue, but 18% (n = 18) of them are still confused. The role of physiotherapy in improving cardiopulmonary fitness in CRF patients 71% (n = 71) of participants agreed positively, and 6% (n = 6) disagreed, but 23% (n = 23) were not sure and confused about what treatment a physiotherapist can give for improving cardiopulmonary fitness.

To enhance the quality of life in CRF patients through physiotherapy treatment, 50% (n = 50) of medical professionals respond positively, 6% (n = 6) are not aware,

and 44% (n = 44) are still confused. To reverse the side effects of steroids like osteoporosis, muscle weakness, and fatigue, 30% (n = 30) of medical professionals agreed, 22% (n = 22) disagreed, and in the highest number, 48% (n = 48) were confused. As CRF patients face severe problems like distal edema, 48% (n = 48) of participants agreed that it can be managed by physiotherapy treatment, 7% (n = 7) did not agree, and 45% (n = 45) were confused.

Physiotherapy treatment for patients on dialysis as pre-dialysis and post-dialysis: 41% (n = 41) are aware of the role of physiotherapy, 12% (n = 12) are not aware, and 47% (n = 47) are confused. Physiotherapy treatment to regain the occupational life of CRF patients: 38% (n = 38) of medical professionals agree, but 6% (n = 6) disagree, and 56% (n = 56) are confused. Early innervations of physiotherapy therapy for avoiding complications in CRF patients and its effectiveness in rehabilitation: 53% (n = 53) medical professionals were aware, 8% (n = 8) were not aware, and 39% (n = 39) were in confusion. Physiotherapy treatment effects reduce anxiety, stress, mood, and confidence in patients with CRF. 45% (n = 45) of medical professionals agreed, 8% (n = 8) disagreed, and 47% (n = 47) were still in confusion.

Physiotherapy is a developing field in India with considerable scope, and it's crucial to address misconceptions surrounding the field and shift attention towered various specialties. The combination of Physiotherapy and medicine is deemed optimal for patient recovery the patient from injury, disability prevention, and enhancing Quality of life.

4. Discussion

The survey study contributed to understanding the current awareness of Physiotherapy among medical professionals in the management of CRF patients. Awareness about Physiotherapy and its referral indicates that 58.5% of medical professionals are aware of the physiotherapist's role in chronic renal failure patients, with nurses (56.95%) being less aware than Doctors (58.33%). A study by Devanshi Doshi *et al*[7] found similar results, emphasizing the need for more specific awareness about physiotherapy and its specialties in the general population.

A significant number of medical professionals are aware that Physiotherapy treatment is effective in addressing muscle weakness and fatigue in patients with CRF [Q6]. Physiotherapy interventions, as demonstrated in the study by Mayara Simoes *et al*[1] effectively enhance the strength and functional capacity of individuals with CRF.

Haniel J. Hernandez *et al.*,[2] study concluded that secondary sarcopenia in CKD can increase the risk of falls. Physical therapists play a crucial role in screening and treating sarcopenia to minimize the susceptibility of bone fracture. Strength training and personalized exercise prescriptions tailored to individual patient needs, as highlighted in the study, contributed to improved muscle strength, bone health, and balance. This approach forms vital components of comprehensive CRF management. Despite the potential benefits, only half of medical professionals are currently aware of early interventions offered by physiotherapy to avoid complications [Q13].

Renal rehabilitation significantly improves the quality of life and biological lifespan in CRF patients. It is a coordinated, multifaceted approach that aims to stabilize, slow, or even reverse the progression of renal deterioration thereby reducing morbidity and mortality. Studies by Masahiro Kohzuki *et al.*,[3] and an interventional study by Manisha Jhamb *et al.*,[15] suggest various exercises and their correlation to the quality of life.

A study conducted by S. Ufuk *et al.*,[4] elucidates the role of the physiotherapist in hemodialysis patients and the effectiveness of pre- and post-hemodialysis exercise programs. The study highlights the positive impact of medical treatment on hemodialysis survival, helping its long-term maintenance when coupled with physiotherapy treatment and protection of physical gains. However, only a limited number of medical professionals are currently aware of these benefits [Q11].

In [Q5] medical professionals are less aware of the benefits of physiotherapy treatment in CRF patients study done by Kisten L *et al.*,[8] showed that exercise training results in improved physical and functional performance among CRF patients.

Vincent-Onabajo G *et al.*,[10] studies on awareness of the physiotherapist's role in multidisciplinary healthcare reveal that interdepartmental lectures on physiotherapy and clinical rounds if conducted, can enhance the recognition of the field. Despite differing opinions among medical professionals, physiotherapy treatment is acknowledged to add years to life. There is a critical need to disseminate awareness about physiotherapy and its role in improving the quality of life for CRF patients as part of a multidisciplinary team. [Q8].

However, Anila Paul *et al.*[11] review note as lack of awareness even in countries with high human

development indexes. A study done by Dhiraj *et al.*,[13] in rural areas regarding physiotherapy awareness of among medical practitioners practicing in rural settings revealed that doctors in rural areas were unaware of physiotherapy services and their significance. Hence, measures are required to improve awareness, as medical professionals play a crucial role in referring patients to physiotherapy. Despite adequate awareness, there is still a need for CRF patients who are unaware of physiotherapy's potential for improving their quality of life. As per [Q4], the majority of medical professionals refer patients to physiotherapists.

For improving cardiopulmonary fitness with the effectiveness of physiotherapy treatment, two-thirds of the medical professionals involved in the study are aware, as a study done by Evangelia Kouidi *et al.*,[12] proved that exercise improves cardiopulmonary fitness [Q7].

Due to limited awareness, one can organize interactive interdepartmental workshops in medical colleges, hospitals, and clinics, focusing particularly on the field of Physiotherapy, especially for nurses. In these workshops, participants should be briefed on the fundamentals of the profession, the duties of a physiotherapist, the evaluation and assessment procedure conducted by the therapist, the scientific evidence supporting various treatment programs, and how these interventions contribute to injury prevention and disability management. Implementing such measures can significantly contribute to increasing familiarity with the field among medical professionals.

By fostering a better understanding among medical professionals about the field of physiotherapy there can be an enhancement in referrals to physiotherapists. While a substantial majority 58.5% of medical professionals is cognizant of the role of Physiotherapy and its role in chronic renal failure patients for the management of symptoms and complications in CRF patients with a multidisciplinary team in the renal unit, there remain some professionals who lack awareness. Therefore it felt necessary to create a more specific understanding and promote the utilization of Physiotherapy services to improve quality of life in chronic renal failure patients.

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6. Future Scope

Awareness can be made to spread awareness about physiotherapy.

7. Ethical Approval

Taken from the Institutional Ethical Committee of KVV with protocol number 635/2022-2023

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