

Effectiveness of Positive Therapy in Management of Stress, Anxiety and Depression Along with Improvement in Quality of Life Among Chronic Kidney Disease Patients – A Review Based Analysis

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Abstract: Purpose/Aim: To identify the benefits and effects of positive therapy which includes progressive muscle relaxation technique and counselling and whether the interventions will enhance the quality of life of chronic kidney disease patients will be determined through this research review. The frequent diagnosis of anxiety, depression and stress among CKD patients, adds more risk to a poor prognosis with higher mortality rate. [1] The levels of stress and depression normally were measured using stress inventory [2], and other standard valid stress, anxiety and depression scales along with quality of life pre and post intervention. The effects of positive therapy interventions such as relaxation technique and Clinical Counselling for anxiety, stress and depression pre and post treatment were evaluated. **Methodology/Approach/Design:** A systematic review of the literature was carried out. Different authors used many different methods, some of them are; qualitative semi-structured interview, cross sectional study, randomised control trial, screening for anxiety and depression, mixed methods study, tools analysis, convergent parallel mixed methods with linked multi centre studies, descriptive cross-sectional study with quantitative approach, and prospective observational study. **Results/ Findings:** All the reviewed articles showed significant positive relationship between positive therapy and stress and anxiety, depression among chronic kidney disease patients. Though there is only limited research on therapeutic interventions on psychological issues of chronic kidney disease patients, the therapeutic interventions including counselling and relaxation techniques, analyzed in the reviewed articles showed marked improvements in overcoming stress, anxiety and depression among the studied group. **Originality/Value:** Positive therapy -counselling and muscle relaxation technique implemented in the reviewed articles below are effective in reduction of stress, anxiety and depression among CKD patients. This in turn improved the quality of life.

Keywords: Anxiety, CKD, Depression, Positive therapy, QOL, Stress, Therapeutic.

1. Introduction

Chronic kidney disease is a major health problem affecting the public. [3] The kidneys fail gradually causing complete failure thereby the waste materials recirculated back to blood instead of excreting through urine. The option left for these patients are to undergo regular dialysis or kidney transplantation for their survival. [4]. The causes may be diabetes, hypertension, cardio-vascular disease, genetic, polycystic kidney disease, regular and prolonged use of analgesics etc.

The socio-economic impact of this disease is worse too. Ultimately once the diagnosis of chronic kidney disease is done, due to its chronicity, every client suffered one or the other psychological issues as per studies. [5] Major part of the CKD population suffered stress and depression. The diet modification and restriction along with change in lifestyle, unable to work full time, dependent on friends, caregivers or family members are the vital factors imposing the client to suffer psychologically. [6] Early screening of these patients for any psychological issues more importantly stress, anxiety and depression and implementing interventions will help to improve their quality of life. Humans, being resilient and generally cope with most of the stressful situations without any residual mental illness but they might require psychological support. [7] Accumulation of major life events are exceeding the threshold of human capacity and placing them at risk of illness. [8]

Stress is mainly a stimulus which is intrinsic or extrinsic ultimately elicit a biological response. [9] Stress in chronic kidney diseases is common as they understand that the treatments may just prolong their life expectancy. This truth in turn exerts more mental stress along with the physical pressure on the patient. Many a time it will be difficult to accept the diagnosis, and choosing the treatment option. Patients find it

extremely difficult in coping with treatment and disease progression. As we know any chronic life-threatening illness will affect the social relationship, life style and mainly employment this applies here with these patients too. [10] Noxious stressors may damage the tissues as observed in the laboratory on animal experiment. [11] Psychologists play an important role on this part keeping in mind the mental health of the chronic sufferer.

Depression is a mood disorder, according to WHO, being the most common illness worldwide and the leading cause of disability [12] Depression is one of the mood disorders and is characterized by stubborn low mood, sad feeling and loss of interest in daily activities. Depression is a continual problem and, usually in an average, it would last for few weeks to months. Long lasting sadness, especially when a client diagnosed with this chronic illness and when they understand that there is no complete cure for this disease. [13] The chronic kidney disease patients become completely dependent on their care givers and with the loss of independence they become depressed. Abnormal ideas such as suicidal ideation or thoughts might come and go [14] Causes of depression could be Genetics, hormonal imbalance, brain changes, poor nutrition, chronic illness, drugs, stress etc. These CKD patients normally require reinforcement on their stability of mental health. Regular follow up with Psychologists and social workers showed improvement in adherence to treatment and following the modified life style by CKD patients according the articles reviewed.

Relaxation measures implemented in the articles below are progressive muscle relaxation technique, and counselling.

2. Related Works

The main variables here are progressive relaxation technique, counselling, anxiety, stress, depression and chronic kidney disease. Reviews are done with articles published between 2012 and 2020. Articles reviewed regarding the alleviation of anxiety, stress and depression using comprehensive measures. Epidemiology and quality of life also reviewed in here.

Kim Sein et al, (2020) [15] conducted a study on 46 end stage kidney disease patients from four NHS hospitals in UK through in-depth structured interviews. Three interviews are of, face-to-face and rest of them were telephonic interviews. Analysis of data was done using thematic method. They discussed with the patients about psychological distress, coping mechanisms and understood the necessity to improve psychological support. The patients who are not really prepared to accept the chronic illness, moreover dialysis or kidney transplantation is the only choices to live, made them feel vulnerable. Educational counselling could be the best part of getting them prepared for coping with the disease. They concluded that, patients having good family and friends support network, or who are able to open up with dialysis staff regularly were able to face the emotional challenges in a better way.

Hanan Mosleh et al, (2020) [16], conducted the prevalence of anxiety and depression study on chronic kidney disease patients who were on haemodialysis in Saudi Arabia. A cross sectional study was performed on 122 patients, out of this

19.7% suffered from anxiety while 24.6% found to be suffering from depression. They concluded that anxiety sufferers are more women when compared to men. When compared with age group more elderly suffered from depression. There was no much significant association observed between their level of education, employment or illness duration.

Through this study they suggested a screening program for chronic kidney disease patients for anxiety and depression. The findings of prevalence of anxiety and depression in chronic kidney disease patients and particularly among females and elderly were reinforced. They also noticed that long-lasting symptoms of depression always decreased the quality of life. The proper intervention methods to deal with anxiety and depression in CKD patients and to understand how these mental disorders affect patient's needs to be studied further. Adding few other renal centres and getting a larger sample would have given more weightage to the findings.

Santa Maria Pangaribuan et al (2020) [17], they studied ESRD patients on haemodialysis about their mental health and the effects of Benson's relaxation technique on them. Benson's relaxation technique is a complimentary therapy which meant to be useful in reducing stress and depression thereby enhancing the quality of life. They reviewed published articles during the period of 2010-2018 using randomised control trials. All the articles reinforced the positive effects of Benson's relaxation technique. They recommended the regular use of this technique as an alternative holistic therapy. The limitations were, as the measured outcomes used only self-reported questionnaires and bias expected. The long-term feasibility of Benson's technique needs to be studied.

Sajad Mansouri et al (2020), [18] The CKD -ESRD and haemodialysis patients suffer physically, mentally and thereby affecting the quality of life. The effective measures to improve quality of life are Psychotherapy and non-pharmaceutical interventions. The educational and supportive group therapy proved to add meaning to life along with motivation in creating a goal to improve the quality of life. The control group received the normal care while the experimental group received the therapy. The participants were assessed using valid inventory for QOL before the intervention, immediately after, and 1 month after the intervention. The difference between the two groups was significant immediately after and 4 weeks after the intervention. Conclusion was, educational and supportive group therapy can expand the interpersonal relationships of haemodialysis patients and positively affect their quality of life.

Gill Combes et al, (2019) [19] this study was conducted in NHS UK, aimed at finding the knowledge of psychological distress of CKD patients by the treating staff. How the barriers prevented the staff from identifying the emotional disturbances of patients were then identified. Staffs were given proper training to improve their skills and knowledge in handling CKD patients and perceiving the distress level and relevant approach were implemented in their clinical care. Clinical guide from cancer speciality were introduced to improve the confidence of staff to counsel CKD patients as the cancer unit is forefront in dealing with these circumstances of mental health. The conclusion was, we need many more researches to be conducted

on mental health of renal patients; as there is no much progress on the field of therapeutic interventions.

Hudiyawati D et al, (2019), [20]. Patients undergoing haemodialysis from a hospital in Indonesia were included with the history of 6 months receiving haemodialysis in this study. They were commonly having associated burden such as anxiety, stress, and depression. Before these symptoms progress to disorders, progressive muscle relaxation (PMR) technique needs to be implemented. The aim of this study was to evaluate the effectiveness of PMR. They performed a quasi-experimental study and random selection done with control and intervention group. Depression, Anxiety and Stress Scale-21 questionnaire (DASS-21) was used. There was significant improvement in the results before and after intervention.

They concluded that PMR is effective in reducing symptoms of anxiety, stress and depression in CKD patients. They suggested recommending this technique as an immediate form of intervention as it proved to reduce the psychological symptoms.

Zhong Sheng Goh Konstadina Griva, Lee Kong Chian (2018) [21] in their narrative study about impact and management challenges of CKD patients with anxiety and depression, the patients represented with the challenges of making the adjustments to life after the diagnosis and need for lifelong treatment, mainly integrating the treatment throughout. The mental health issues if not given priority on these chronic patients it could affect the treatment outcome and may be detrimental. Most of the studies showed the prevalence of anxiety and depression are extensive in CKD when compared with other chronic diseases such as heart diseases and cancer. They have also suggested as a first step to implement routinely the distress screening on all CKD patients and interventions. Few interventions like psychotherapies and pharmacotherapy have shown marked improvements in lifting their mood.

Vinod Kumar, Vikash Khandelia, Ankita Garg, (2018), [22] CKD being chronic disease and considered as global health problem with highest financial burden on health care. With the diagnosis and chronic nature of this disease along with requirement of haemodialysis, patients are prone to develop psychiatric disorders. An observational cross sectional study was conducted between 2016 and 2017 on 150, both sex patients with CKD who were undergoing dialysis. Their results showed male patients suffered more of depression. Out of 150 clients, 62% suffered from depression and 28% suffered from anxiety. They concluded that there is an extensive relation between CKD and psychological disorders along with social, economic factors.

Pereira et al, (2017) [23] stated that CKD patients undergo many life styles changes. This CKD group of patients and caregivers are both at risk of developing emotional distress symptoms. Conducted a cross sectional study on adult patients receiving dialysis for at least 6 months duration and care givers from January to September 2015. Analysis was done using descriptive method, results were then compared. Their study suggested providing psychological support to both patients and care givers as both the groups are affected similarly. The research gap is to study further regarding the group treatment

for this population eventually promoting physical and psychological well-being.

Rami Habes Hamed Alrawashdeh (2017), [24] conducted a research in U. P. India about effectiveness of relaxation techniques on anxiety and depression using Jacobson's relaxation technique (progressive muscle relaxation) and Transcendental Meditation Technique which was developed by Maharishi Mahesh Yogi. This technique involves the use of a mantra and is practiced for 15–20 minutes twice a day sitting and eyes closed. This mantra meditation technique is the one which is widely studied and used around the world. Pre and post test conducted on 80 clients from Jordan city. The findings were, both relaxation technique and meditation were effective on reducing the levels of anxiety and depression and aids in improving quality of life. Research gap is, other relaxation techniques to be used and many other psychological issues than anxiety and depression need to be studied in future research.

Ifa roifah et al (2017), [25] their study on ESRD patients on haemodialysis included depression and the progressive muscle relaxation technique as a holistic treatment. The aim is to prove the relaxation technique is beneficial on these clients. They used quasi experiment design and pre-test and post intervention data evaluated. The progressive muscle relaxation technique was implemented on twice a week basis. They concluded that there is significant difference in test and control groups after the treatment, with decreased level of depression and also noticed that the therapy could increase the melatonin and serotonin and reduce the stress hormone. This improves positive thinking by reducing the muscle tension. In the results they noticed that there is significant influence of PMR, who received twice a week treatment. The routine PMR session to patients on haemodialysis is suggested after this study. There is another suggestion to provide a separate relaxation room, so that they can do their relaxation and then attend the haemodialysis. Their conclusion from the quasi experimental study showed significant relationship between the interventional holistic therapies of the comprehensive method of progressive muscle relaxation.

Sung Rok Kim et al, (2013) [26] did their research among chronic kidney disease patients and the association between anxiety and depression which ultimately affecting the quality of life which was considered as important part. They took a sample size of 208 CKD patients and assessed using hospital anxiety and depression scale along with WHOQOL-BREF used to assess quality of life. The prevalence of anxiety and depression remained same among all stages of CKD and higher in pre-dialysis stage. Screening for anxiety and depression in the early stages would be beneficial to improve the quality of life.

Suja Abraham et al, (2012) [27]. a study conducted in a tertiary care hospital, Nephrology department, on CKD/ESRD patients on regular haemodialysis, a longitudinal observational study was carried out for six months, WHO-BREF is used to measure the quality of life with four main domains. This diagnosis of CKD requires life- long treatment, whether its drugs, dialysis or transplantation the treatment is for life time. This treatment also is unfortunately not curative but to prolong the years with enhancement of quality of life. That is the reason

the quality of life will show impairment in these chronic patients.

The impact of counselling was studied on 50 patients. High scores were recorded post counselling giving a positive feedback on treatment. They concluded that, the counselling plays an important role in improving quality of life. The positivity towards their life has improved and most of them became self-sufficient and were able to involve themselves in normal social interactions. Limitation was the 6 months' duration, if the follow up is for two to three years, then the results would have had more weightage. The suggestions were, to create awareness in CKD patients about their disease and to curtail from the misconceptions about the disease.

Agneta A. Pagels (2012), [28] a study conducted in Sweden to check for wellbeing among chronic kidney disease sufferers in different stages including during initiation of renal replacement therapy. 535 CKD patients and 55 controls were used in their cross-sectional study. Results showed significant deterioration in all biomarkers except for BMI. Screening systematically during the early stages of disease would help them to improve their health and wellbeing. The deterioration in quality of life is not only due to CKD but also for the few other co-existing factors. Their conclusion was once a person diagnosed with CKD the quality of life is affected and kept deteriorating with the advancing stages.

3. Objectives

1. To know the benefits of positive therapy in reducing the stress, anxiety and depression and improving quality of life among CKD patients.
2. To identify the better techniques of specificity that may be used in reduction of stress, anxiety and depression.
3. To find out the efficacy of the relaxation techniques used in CKD patients.
4. To identify the research gap of reducing the levels of psychological issues by using comprehensive measures.
5. To find out the effects of positive therapy in enhancing the quality of life.

4. Material and Method

The systematic review of literature was carried out using the search engines namely, Google Scholar, Academia, Research gate, Shodh Ganga, PsychInfo and the electronic data was obtained. The search words are chronic kidney disease, stress, depression, relaxation technique, therapeutic interventions. Reviewed more than fifty related articles and selected only relevant articles in the management of stress and depression among chronic kidney disease patients. The sorted are from 2012 to 2020 and prepared for publication.

5. New Related Issues

- Examine the patients for development of psychological issues after the CKD diagnosis.
- Educate them about causes, signs and symptoms along with treatment options for anxiety, stress and depression.
- The comprehensive treatment modalities available for the

enhancement of their quality of life.

- Evaluation of mental health problems faced after the main diagnosis of CKD.
- Importance of expressing the feelings to others.
- Prepare them to accept the challenges of life as it comes.
- Importance of adherence to the treatment as a survival measure.
- Implementation of Positive therapy along with pharmacological treatment to alleviate anxiety, stress and depression.

6. Ideal Solutions, Current Status and Improvements Required

Educate the patient and family about the preventive measures and maintenance with dietary modifications along with medications. [29] Explain to them about the strict hygienic measures to prevent any infection thereby preventing hospitalisation. The symptoms of chronic kidney disease will be observed and required treatment will be rendered. When they reach the ESRD stage, counselling will be given regarding requirement of dialysis and the process will be explained in detail. To curtail from fear, good rapport and introducing other fellow members on dialysis will be done. The reason for anxiety, stress and depression in chronic kidney disease patients will be evaluated and will be trying maximum to treat at the source. Once the level of severity of anxiety, stress and depression among these patients is identified then the treatment will be commenced as per multi-disciplinary team suggestions. Positive therapy will be initiated with educational counselling and Jacobson's relaxation technique. [30] Once the client understands the necessity of positive therapy it will be easier to approach them for treatment. Pre therapy assessment will be conducted and the effects of positive therapy in management of stress and depression will be compared post therapy at three-to-six-months. The assessment of the quality of life before and after treatment will be monitored.

Importance will be given to clients regarding

- Awareness about the chronic kidney disease
- Importance of positive therapy
- Health education
- Coping with the disease
- Family and social support
- Provision of Financial support
- Consideration of travel issues etc., as per the institutional policy.

7. Research Gap

- The comprehensive intervention methods were not given much of importance in most of the reviewed articles.
- Patients and family need to be educated on same. Moral support with one-on-one counselling also showed marked improvement in their physical health as well.
- The review papers are not showing any specific intervention method for psychological issues in CKD patients. This is the main research gap.

- Educating renal unit staff to recognise the anxiety, stress and depression symptoms and to notify to the mental health team. This will help the patients to get treatment in time as the renal staff will be working round the clock with CKD patients.

8. Discussion

Patients on dialysis are normally constrained in the department for 4 hours three times a week. Due to the unexpected dependency most of the patients get frustrated, become anxious and acquire depression. Some of the patients will have suicidal ideation as well. Social worker needs to liaise with patient and family and need to sort their social support issues and finances too. The burden of CKD just never ends in here, most of the young patients opting for kidney transplantation will be waiting for years to get a compatible kidney and it is cumbersome to the client. Unless and until they are educated regarding the post-transplant care thoroughly, they may end up dialysis dependent again. In this area the psychologist will be more accommodating and encouraging and definitely a requirement to the dialysis unit. Specified treatment option for the psychological issues such as anxiety, stress and depression need to be identified. [31]

9. Research Agendas

- In this review of literature adult population was studied for their mental health and promotion of wellbeing.
- Allowing them to speak up about their issues and listening to their problems would relieve their distress to half.
- Educating them regarding their disease and providing awareness will be helpful in coping with the situation.
- As it is a lifetime diagnosis, they will be more prone to frustration that's the reason they require to attend mental health team regularly.
- Providing friendly and accepting atmosphere provides them comfortable four hours of stay in the dialysis department.
- Once the patient is aware what to expect in life their awareness will make them to accept the fact in a better way.
- Recognise the implications of early detection of symptoms of anxiety, stress and depression.
- The signs and symptoms of depression and CKD need to be explained to them.
- Importance of understanding the compliancy in their treatment.
- Educating the renal staff to provide psychological support.
- Educate patients for positive therapy and its benefits in their situation.
- Understanding the effectiveness of the therapy.

10. Analysis of Research Agenda

- Early identification of psychological issues reduced the risks of mortality.
- Made them understand the signs and symptoms of depression and CKD.
- The effects of all positive therapies reinforced.

- The early identification of psychological issues reduced the risks of mortality as per the review.
- The hospitalisation of clients was in decline when they were diagnosed to have altered mental status at the initial stage and provided guidance and treatment.

11. Limitations

- Reviewed papers are only limited number of articles.
- Generalisations would be better if there were only specific relaxation method was used in all the studies.

12. Conclusions

- The reviewed research papers give us an idea of how important is the mental health of CKD patients.
- The main issues they face are anxiety, depression, and stress and in these studies all the authors suggested to diagnose the mental issues early by screening at the earliest and treat them accordingly.
- It is important to consider the mental health issues to keep their physical health in a stable condition.
- Most of the studies suggested assessing mental health issues using valid scales such as BDI and HADS inventory which gives more accurate levels of anxiety, stress and depression.
- Pre and post test results will be more conclusive for the assessment of effectiveness.
- The fear of dying sets in and sometimes impossible to reverse it. These patients require regular counselling support.
- Positive therapy in here mainly counselling and muscle relaxation techniques were used, same were giving a better outcome.
- As per the above review of literature, the treatment offered through comprehensive measures was beneficial to the clients.
- We will try to implement these techniques of counselling and muscle relaxation to improve the quality of life of CKD patients, with the holistic treatment.
- I am suggesting in implementing the techniques of relaxation on our chronic kidney disease patients in our institution.

References

- [1] Hudson JL, Rona Moss-Morris, David Game, Amy Carroll, Paul McCrone, Matthew Hotopf, Lucy Yardley, Joseph Chilcot (2010). Improving distress in dialysis (iDiD): A feasibility two-arm parallel randomised controlled trial of an online cognitive behavioural therapy intervention with and without therapist-led telephone support for psychological distress in patients undergoing haemodialysis. *BMJ Open* 6(e011286), 1-10.
- [2] Preetha Menon, Hemalatha Natesan, (2007). Management of Stress and Depression and Enhancement of Well-being in Kidney Patients through Positive Therapy. [www.https://shodhganga.inflibnet.ac.in. http://hdl.handle.net/10603/127331](http://hdl.handle.net/10603/127331)
- [3] Knowles et al. *Trials* (2016). *BMC Nephrology*. 17(447), 1-9.
- [4] Kimmel PL, Weihs K, Peterson RA. (1993). Survival in hemodialysis patients: The role of depression. *J Am Soc Nephrol*, 4:12-27.
- [5] Taylor et al (2016). *BMC Nephrology* 17(111), 1-12.

- [6] Lesley A. Stevens *et al.* (2010), Prevalence of CKD and Comorbid Illness in Elderly Patients in the United States: Results from the Kidney Early Evaluation Program (KEEP), *American Journal of Kidney Diseases*, Volume 55(3), Supplement 2, S23-S33.
- [7] Neil Schneiderman *et al.* (2005), Stress and Health: Psychological, Behavioural, and Biological Determinants, *Annu Rev Clin Psychol*. 05 (1):607-628.
- [8] MA Bruce, DM Griffith, RJ Thorpe Jr (2015) -Stress and the kidney. *Advances in chronic kidney disease* 22(1), 46-55.
- [9] Habib N *et al.* (2017), Massively parallel single-nucleus RNA-seq with DroNc-seq. *Nat Methods*.14(10):955-958. 10.1038/nmeth.4407. PMID: 28846088; PMCID: PMC5623139.
- [10] Combes G, Damery S, Sein K, Allen K, Nicholas J, Baharani J, (2019), Distress in patients with end-stage renal disease: Staff perceptions of barriers to the identification of mild-moderate distress and the provision of emotional support. *PLoS ONE* 14(11), 1-20.
- [11] Tan, Siang Yong, and A Yip (2018). "Hans Selye (1907-1982): Founder of the stress theory." *Singapore medical journal* vol. 59,(4) 170-171.
- [12] Thejavathi U C, D'MelloLaveena (2021), Psychological Issues Among Chronic Kidney Disease Patients-A Comparative Study between Different Age Groups. *IRJMETS* 03 (2), 1266-1277.
- [13] Kimmel PL, Thamer M, Richard CM, Ray NF. (1998). Psychiatric illness in patients with end-stage renal disease. *Am J Med*,105:214-21.
- [14] Vinod Kumar, Vikash Khandelia, Ankita Garg, (2018). *Depression and anxiety in patients with chronic kidney disease undergoing haemodialysis. Department of Nephrology, Government Medical College and Hospital, Kota, Rajasthan, India.* 2 (2),115-119.
- [15] Sein K, Damery S, Baharani J, Nicholas J, Combes G (2020) Emotional distress and adjustment in patients with end-stage kidney disease: A qualitative exploration of patient experience in four hospital trusts in the West Midlands, UK. *PLoS ONE* 15(11) 1-12: e0241629.
- [16] Mosleh H, Alenezi M, Al Johani S, Alsani A, Fairaq G, Bedaiwi R.(2020). Prevalence and Factors of Anxiety and Depression in Chronic Kidney Disease Patients Undergoing Hemodialysis: A Cross-sectional Single-Center Study in Saudi Arabia. *Cureus. Jan15;12* (1) 1-11:e6668. doi: 10.7759/cureus.6668. PMID: 31976185; PMCID: PMC6968827.
- [17] Santa Maria Pangaribuan (2020). Effect of Benson's Relaxation Technique on Mental Health and Quality of Life in Hemodialysis Patients: A Literature Review. *Indian Journal of Public Health Research & Development*,11 (05) 827-831.
- [18] Mansouri, S., Jalali, A., Rahmati, M. *et al.* (2020). Educational supportive group therapy and the quality of life of hemodialysis patients. *BioPsychoSocial Med* 14, 27.
- [19] Combes G, Damery S, Sein K, Allen K, Nicholas J, Baharani J(2019), Distress in patients with end-stage renal disease: Staff perceptions of barriers to the identification of mild-moderate distress and the provision of emotional support. *PLoS ONE* 14(11), 1-20.
- [20] Hudiyawati D *et al.*(2019), Effectiveness of Progressive Muscle Relaxation in Reducing Depression, Anxiety and Stress among Haemodialysis Patients attending a Public Hospital at Central Java Indonesia.IMJM Volume 18 No. 3, December 2019.
- [21] Goh Z. S, Griva K, (2018). Anxiety and depression in patients with end-stage renal disease: impact and management challenges - a narrative review. *Int J Nephrol Renovasc Dis.* 2018 Mar 12(11), 93-102.
- [22] Vinod Kumar, Vikash Khandelia, Ankita Garg, (2018). *Depression and anxiety in patients with chronic kidney disease undergoing haemodialysis. Department of Nephrology, Government Medical College and Hospital, Kota, Rajasthan, India.* 2 (2),115-119.
- [23] Beatriz dos Santos Pereira, Neimar da Silva Fernandes, Nayara Pires de Melo, Renata Abrita, Fabiane Rossi dos Santos Grincenkov and Natália Maria da Silva Fernandes (2017). Beyond quality of life: a cross sectional study on the mental health of patients with chronic kidney disease undergoing dialysis and their caregivers. *Health and Quality of Life Outcomes*,15 (74), 1-10.
- [24] Alrawashdeh, Rami Habes Hamed (2017) Assessing the Effectiveness of Relaxation Techniques in Management of Anxiety and Depression. *(Doctoral thesis). Aligarh Muslim University.*
- [25] Ifa Roifah and Amar Akbar (2017). The Influence of Progressive Muscle Relaxation Techniques on Depression level of Chronic Kidney Disease patient undergoing Haemodialysis Therapy, *International Journal of Nursing and Midwifery*, 1(2),111-121.
- [26] Y. J. Lee, M. S. Kim, S. Cho, S. R. Kim (2013). Association of depression and anxiety with reduced quality of life in patients with predialysis chronic kidney disease. *The International Journal of Clinical Practice*, 67(4), 293-389.
- [27] Abraham S, Venu A, Ramachandran A, Chandran PM, Raman S (2012). Assessment of quality of life in patients on hemodialysis and the impact of counseling. *Saudi J Kidney*.
- [28] Agneta A Pagels, Birgitta Klang Söderkvist, Charlotte Medin, Britta Hylander, and Susanne Heiwe (2012). Health-related quality of life in different stages of chronic kidney disease and at initiation of dialysis treatment. *Health and Quality of Life Outcomes* 2012, 10 (71), 1-11.
- [29] Shayan Shirazian, Candace D. Grant, Olufemi Aina, Joseph Mattan, Farah Khorassani, and C. Ricard (2017). Depression in Chronic Kidney Disease and End-Stage Renal Disease: Similarities and Differences in Diagnosis, Epidemiology, and Management. *Kidney Int Rep*(2017) 2, 94-107;
- [30] Elham Amini, Iraj Goudarzi, Reza Masoudi, Ali Ahmadi, Ali Momen, (2016). Effect of Progressive Muscle Relaxation and Aerobic Exercise on Anxiety, Sleep Quality, and Fatigue in Patients with Chronic.
- [31] Damery, S., Sein, K., Nicholas, J. *et al.* (2019). The challenge of managing mild to moderate distress in patients with end stage renal disease: results from a multi-centre, mixed methods research study and the implications for renal service organisation. *BMC Health Serv Res* 19 (989), 1-10.