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# QUALITY IMPROVEMENT PROJECT FOR MANAGEMENT OF DEPRESSION IN CHRONIC KIDNEY DISEASE PATIENTS RECEIVING HAEMODIALYSIS

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**ABSTRACT**

**Introduction:** Patients receiving dialysis treatment in Combined Military Hospital, Abbottabad were suffering from some kind of depression and a few of these patients were also attending the psychiatry department for the management of depression. Chronic kidney disease being the commonest indication of dialysis was itself a known cause of depression like any other chronic disease. The longer redundant sessions of dialysis also added up to the existing low mood.
**Aim:** To apply quality improvement methodology and apply a few appropriate interventions to reduce the prevalence of depression. The NICE guidelines 2009 for depression management were used to guide the introduction of appropriate interventions. PHQ-9 was used to score depression before and after the intervention.
**Methods:** Diagrams, flowcharts were used to show aims and objectives. A Plan, Do, Study, Act cycle was used. The prevalence of depression in dialysis patients were calculated using the PHQ-9 questionnaire. A new plan for the dialysis department decoration and the introduction of facilities was formulated with input from the dialysis department staff. Help from NICE guidelines for depression management was taken and an increase in the availability of junior doctors for counseling and responding to the patient's condition was made.
**Results:**120 patients involved in the dialysis sessions were targeted in this project for the six months duration. 40% of the patients were found to be suffering from moderate-moderately severe depression (score range 10-19) via the filled PHQ-9 questionnaire. Four months after the introduction of various changes the PHQ-9 was filled by the same patients. Now the prevalence of depression reduced to 10%. The patient's still scored as being depressed were in the mild depression range(i.e. score on PHQ:5-9).
**Conclusion**: Following the implementations especially focusing on the counseling sessions (as mentioned in NICE guidelines)and increasing

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the Doctor's availability in the department with some environmental changes, there was an improvement in overall patient care. Especially the patient's mental health improved and the overall mood of the patient was elevated.



**INTRODUCTION**:

Chronic Kidney Disease (CKD) is an irreversible deterioration of renal function where kidneys fail to maintain the body`s metabolic, fluid, and electrolyte balance. It is mostly [1] caused by systemic diseases like hypertension, diabetes mellitus, glomerulonephritis, pyelonephritis and it manifests as generalized discomfort, nausea, dyspnea, pedal edema, pallor, leg cramps, insomnia, reduced fertility, etc. All these in turn have a very profound effect on patients [2] quality of life. [3] Different management protocols are followed like causal treatment, continuous monitoring of vitals and renal functions especially serum creatinine levels, patient education, dialysis as part of renal replacement therapy, and the renal transplant; depending on the stage of CKD. There are several adherence barriers to such therapy, like [4] socio-economic factors, the limited number of machines, associated comorbidities. This non-compliance when paired up with chronicity of the disease and its therapy has a detrimental effect on the overall quality of life of patients; particularly affecting patients [5] psychology and thus increasing the overall level of depression in such patients.

Persistent [6] need for hemodialysis (being carried out thrice weekly or on alternate days) impairs patients' psychology due to restrictions it imposes on patients and the hopelessness it creates.

The dialysis unit of Combined Military Hospital is the only army hospital dialysis unit in the entire Hazara division. So it has a high influx of entitled patients. Most of the patients have biweekly sessions. Its services are available 24 hours every day throughout the year. It provides for both emergency and electively scheduled dialysis.

It has a dialysis list for the scheduled cases whereas it can also accommodate for emergency dialysis. The usual practice was that few dialysis trained nurses would run the unit with some technical staff available. A Nephrologist was head of the unit. Being a peripherally located hospital; there was only one nephrologist available so the work burden was a lot and all the issues could not be reported to the specialist in time.

When observing the dialysis patients, it was noted that most of the patients would be overall unhappy, relatives, and carers of a few of these patients complained about their low mood, few patients requested psychiatrist referral. Whereas the potential management involves a team of Doctors available at all times for supervision and counseling of patients; providing a wholesome collaborative care plan. Under such circumstances and the kind supervision of in charge of the Dialysis Unit, a quality improvement project was planned, analyzed, and acted upon in an attempt to make a change.

Special focus was made on depression management in Chronic Kidney Disease patients because a chronic medical condition can [7] cause as well as exaggerate depressive symptoms in a person. Examples of chronic illnesses include diabetes, heart disease, arthritis, kidney disease, HIV/AIDS, lupus, and multiple sclerosis, etc. The functional disability, pain, and psychological inability associated with any chronic illness cause depression. Depression can increase the harmful effects of chronic disease by worsening the course of medical disorders by the release of inflammatory factors, activation

of the hypothalamic-pituitary axis, autonomic nervous system, and metabolic factors. Depression can also cause weight gain, a sedentary lifestyle, addiction to smoking, and non-compliance to medical treatment. Similarly, depression itself can add up to chronic health effects and may even lead to other chronic illnesses like hypertension, cardiac diseases. Thus the vicious cycle continues as both depression and chronic condition adds up to each other. Overall reducing the quality and expectancy of life. As one can imagine if a person is suffering from both prolonged diseases and low mood the consequences are far more damaging. It has been said that [8] Depression is 2-3 times more common in patients with chronic diseases.

Depression is a part of a heterogeneous group of mood disorders. The most important questions [9] asked for an initial diagnosis of depression are:

• During the last month, have you often been bothered by feeling down, depressed or hopeless?

• During the last month, have you often been bothered by having little interest or pleasure in doing things?

If the answer to any one of these questions is yes, then a thorough assessment is required for scoring and managing depression. One of the scales employed to score depression is [10] PHQ-9(Patient Health Questionnaire-9) along with many others like Hospital Anxiety and Depression score, DSM-IV, and ICD-10 criteria threshold.

Treatment regimens for depression include psychotherapy and antidepressants (for severe depression prescribed by a psychiatrist). Collaborative depression care is the hallmark of a treatment plan.

[11] The treatment plan is based on the patient's culture, preferences, and requirements and should be easily accessible even to patients with any disability. Good communication, patient-centered care with evidence-based written information is the best way to overcome such mood disorders. If the patient agrees his relatives, carers, partners, families can be involved for better implementation and compliance. All available resources and support groups to be involved.

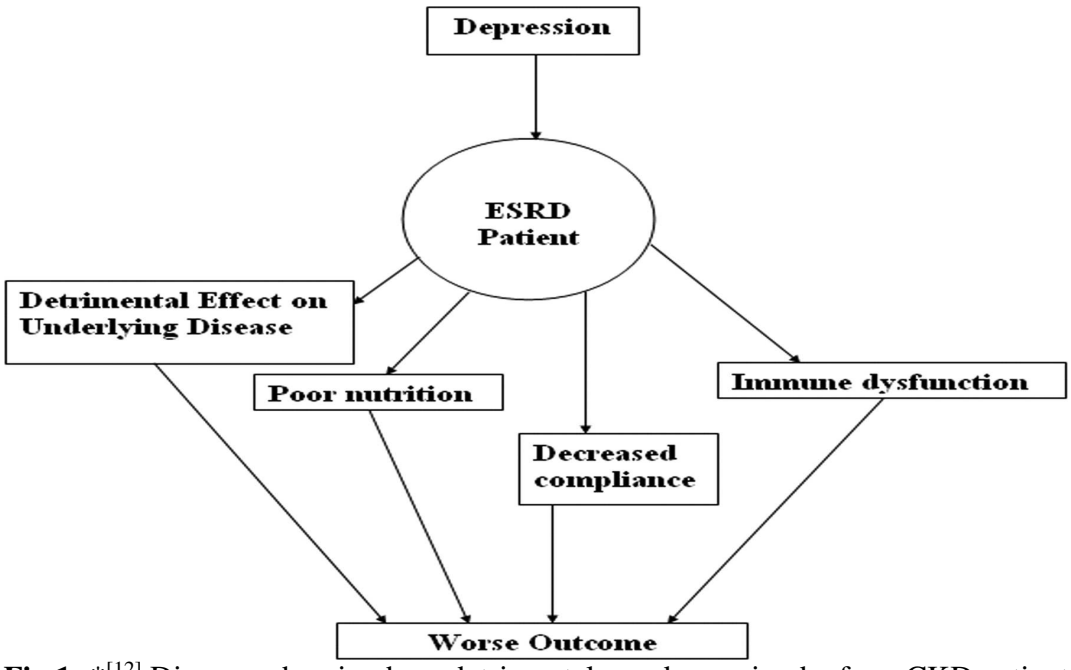


**Fig 1:** *[12] Diagram showing how detrimental can depression be for a CKD patient

**METHODS:**

Initially, the aims and the guidelines to follow were laid out in a driver diagram. "[13] A driver diagram shows the relationship between the overall aim of the project, the primary drivers that contribute directly to achieving the aim, the secondary drivers that are components of the primary drivers, and specific change ideas to test for each secondary driver." The [14] NICE guidelines for depression management in adults were adopted.

These diagrams and flowcharts helped me and the entire Dialysis unit in focusing on the key areas to work on. It was decided that the outcome would be recognition and scoring of depression in patients and making sure the different interventions (especially filling the communication gap between the patient and the doctor) are employed. The individual's condition based counseling, education, and motivation of the patient were planned.

Introduction of various facilities was arranged by the hospital like installation of television, newspapers and magazines provision, maintaining quiet side of the room for patients who want to rest, allowing one attendant into the room with the patient and adding bright colors to the overall look of the room

For diagnosing and scoring the patient's depression PHQ-9 Score was used.

For management, counseling, and patient education NICE guidelines and guidance from the psychiatrist and Medicine residents were used.

After thorough discussions with the Nephrologist, Psychiatrist, and residents of the Medicine department, it was decided that for diagnosing and scoring the patient's depression PHQ-9 Score will be used.

For management, counseling, and patient education NICE guidelines and guidance from the psychiatrist, Medicine residents, and Nephrologist will be used.

After researching on QIP methodology, a [15] PDSA cycle was used.

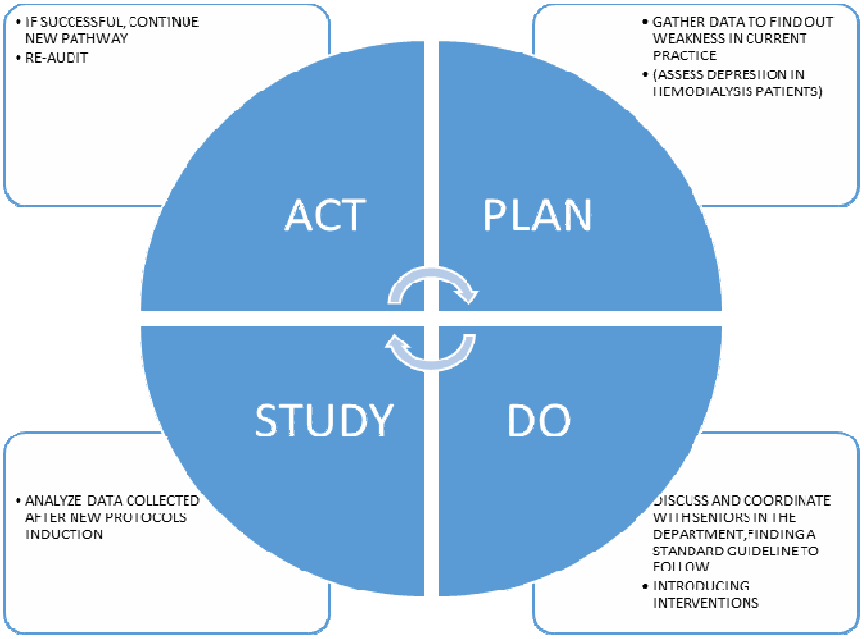


**Fig 2**: 1) For the first step "PLAN", the task was to identify if there was a depression in CKD patients receiving dialysis. So a PHQ-9 was used. After the patient fills the forms it was calculated that 40% of patients had moderate-moderately severe depression (score of 10-19).

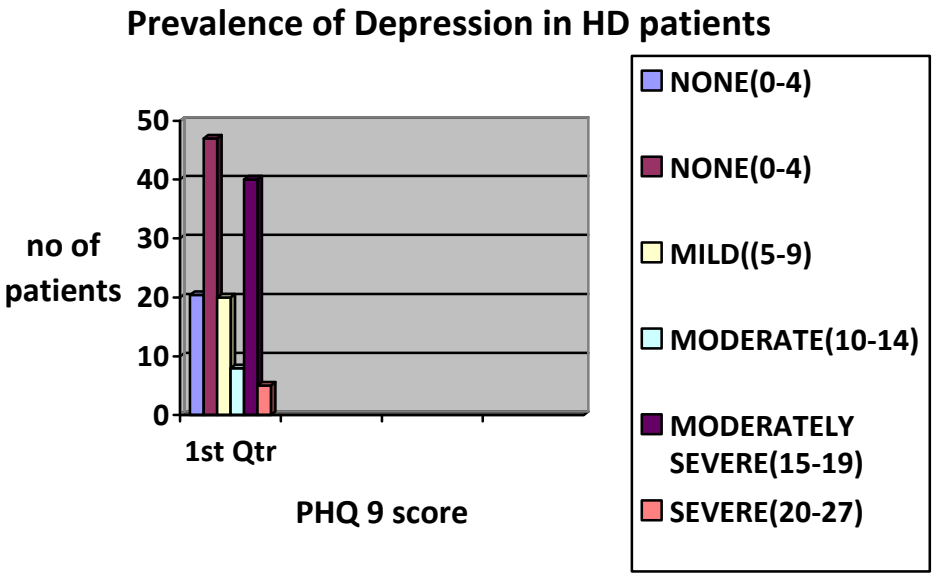


**Fig 3**: Prevalence of depression in HD patients

2)For the second stage of "DO", the task was to implement the change. So after taking help from NICE guidelines and guidance based discussions with seniors of the Medicine Department, the previously involved patients were targeted and on their next session, a further assessment regarding the cause of depression was done. The patient's needs, preferences, cultural and social restraints were taken into account and a care plan based on a few principles was offered. The focus was made on sleep hygiene, active monitoring of patients, psychosocial interventions (group physical activity program, group-based peer support i.e. experiences, self-help based on CBT principles, CBT) involving partners and family, psychiatrist referral for drug treatment (after discussing with seniors). Initiated teaching of the staff regarding depression management policies during the usual scheduled weekly lectures.

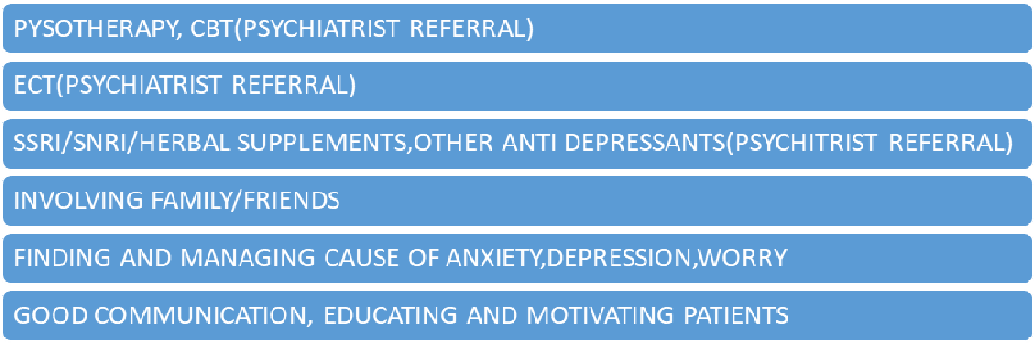


**Fig 4:** [16] Diagram showing various management options

The hospital administration introduced few facilities on request that added up to the overall result.

3)For the third stage of "STUDY", an analysis of the results was to be made. So after 4 weeks, the same set of patients were contacted and the PHQ-9 was filled again by

the volunteers. Analysis of comparison of the two filled PHQs by each patient was done.

It was found that the prevalence of depression had fallen from 40%(48) to around 10%(12 patients). Success was also seen by the reduction of the level of depression. It showed now the patients classified as depressed had a PHQ-9 score of 5-9 i.e. mild depression.

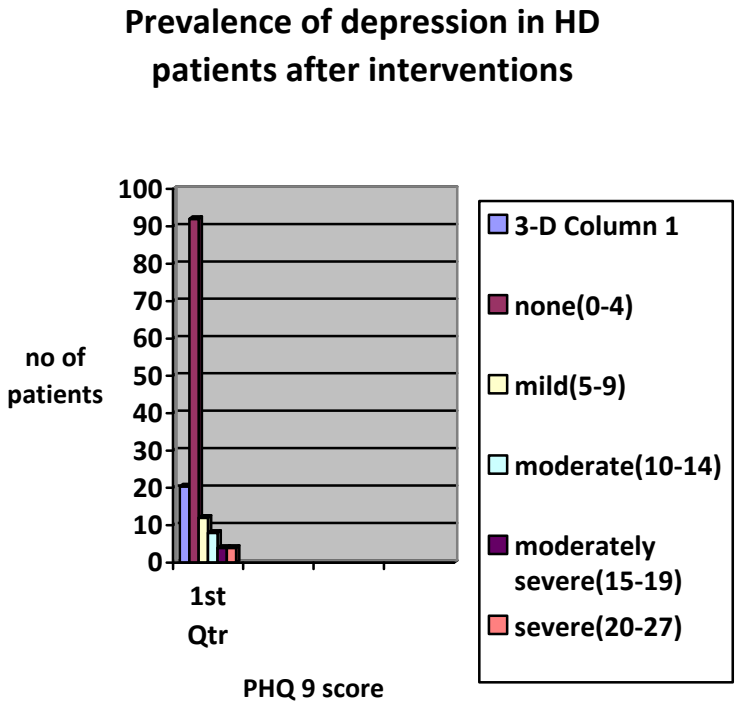


**Fig 5**: Prevalence of depression in HD patients after the intervention

1) The fourth and final stage that is the "ACT" stage helps to identify where any modifications are needed and how to proceed into a new cycle of improvement.

**IMPLEMENTATION:**

The initial audit results were presented in the monthly medicine department meeting of the hospital, as the hospital was already under improvement and renovation and suggestions were asked from all members of the hospital. So the funding for environmental change along with staff and doctors training regarding mood disorders by Nephrologist, Psychiatrists was made possible. I and a team of volunteers under the supervision of consultants gave teaching sessions to other staff members. Nephrologist made nephrology and psychiatry rotation plans for junior doctors and residents. Printed instructions for junior doctors for keeping in mind the mental health of every patient received and mood disorders evaluation in chronic illness patient were circulated. Ethics and counseling workshops were to be introduced.

**RESULTS**:

After 6 months that is in September 2018, the prevalence of depression in CKD patients was calculated, involving the patient population of 80 this time. It was found to be around 15%(12patients)(which was a bit higher than the previously achieved result of 10% but significantly reduced percentage (40%)than the first PHQ-9 score.

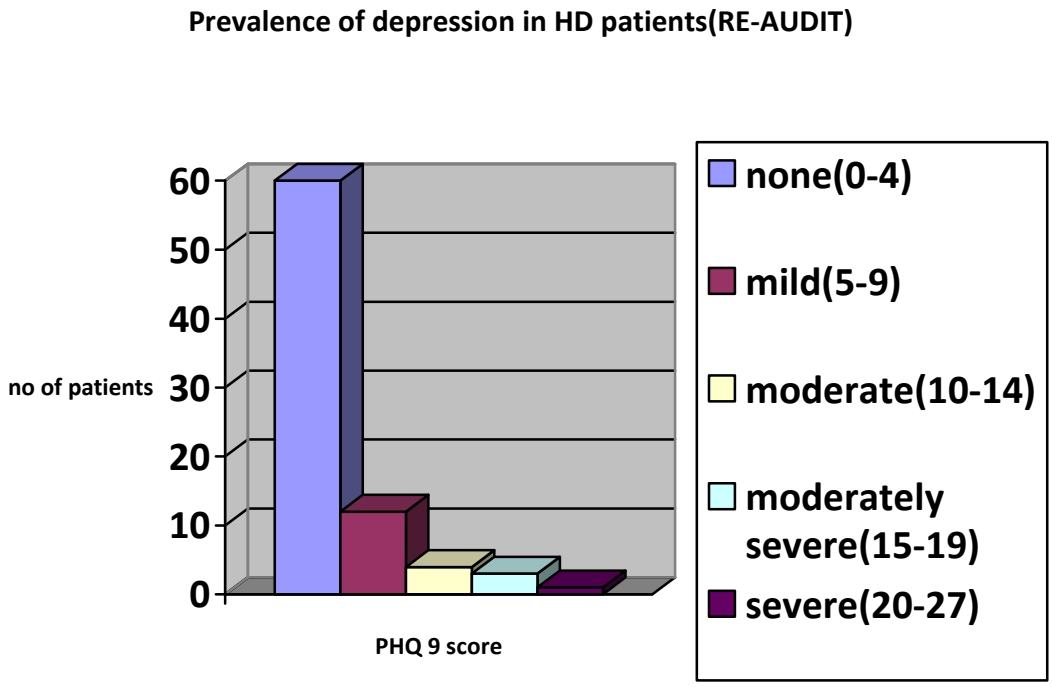


**Fig 6:** Prevalence of depression in HD patients (Re-Audit)

Overall the causes of this newly achieved result can be multifactorial. One of the major things can be individual variation as new CKD patients were involved this time. Also, the error based on the small sample size can be the cause. Lack of interest in nephrology or non-compliance at the level of new rotational doctors can also add up. Sometimes the patient fails to give the appropriate details or fails to comply with the guidance received. Also, the involvement of hospital staff in various other projects slowed down the teaching sessions over time.

Apart from these the limitations of the reduced number of available staff as the hospital is located in the periphery may have been the contributing factor.

**DISCUSSION:**

Any chronic illness can lead to detrimental effects on mental health. It is mainly because of the prolonged continuous treatment sessions and follow-up requirements, the dull monotonous routine of frequent hospital visits. Furthermore, the pain and disability associated with chronic diseases add up to depression. Even low mood can increase the release of anti-inflammatory and metabolic factors, cause obesity by inducing a sedentary lifestyle and addiction to other evils like smoking. Effects on mental illness are seen more in Chronic Kidney disease patients as compared to other chronic illnesses. [17] Among these CKD patients, depression and suicidal behavior are more common in dialysis patients. Keeping these facts in mind, we set out on a quest to find ways to overcome and manage the mental health of CKD patients visiting the hospital for dialysis. This whole process took a longer time than expected. There were some logistical issues when setting up meetings and seeking guidance from the members of the medicine department. This was mainly because of the rota commitments of various members of the departments. The

setting up of acceptable guidelines for assessing and helping outpatients was also a difficult task.

Overall there was an improvement in the mental health of patients visiting the dialysis center. However various shortcomings were also observed like reduced cooperation from dialysis department staff due to other work commitments, tracing and following up the patients took time. The time duration chosen for the study proved to be of importance as the whole hospital was in the renovation phase and new suggestions were demanded from hospital members that helped us in introducing environmental support. The whole nephrology department was taught how to use the PHQ-9 score and thus workload was efficiently managed. The dialysis rotations were planned for House officers by the Nephrologist during the Medicine rotation. This ensured the doctor's presence and support for patients. Counseling of patients was taught in weekly lectures and nursing lectures of the hospital by taking the help of all the residents and doctors. Patients were traced back on their scheduled follow-up visit and again the scoring was done.

Numerous printouts explaining the scoring of PHQ-score and management criteria were displayed in the department. The indications of psychiatrist referral were also printed and made available for accomplishing the goal.

With time, it was noted the cleanliness and the supportive environment offered, with the presence of a doctor in the department to deal with emergencies and to answer the queries of patients improved patient's outlook of the hospital.

Various researches have been done in the past on the prevalence and management of depression in CKD patients. In the majority of these researches, it has been seen the depression is very much [18] prevalent and treatable in CKD patients. [19] In one research it was seen that there was a very low rate of depression treatment in dialysis patients, mainly because of the lack of proper assessment of depression in CKD patients and inadequacy of evidence-based treatment protocols. It also observed that frequent hemodialysis, proper communication to address a patient's query, and counseling is the best approach in addition to the use of SSRIs or psychiatrist referral in severe cases. Alternative therapies include music therapy, anxiety and insomnia management, social support groups, and exercise training.

[20} Many studies focus on available treatment options for depression in CKD patients. But the need of the hour for the hospitals is to make a guideline and follow a specific policy while dealing with such patients. Lack of this policy made us work into it and find out an acceptable guideline to follow and observe the results.

[21] Many international studies show and propose that management of depression in CKD patients is important because not only it helps in improving mental health but also can reduce the associated mortality and suicidal risks. It can also improve [22] nutritional status in chronic hemodialysis patients.

**CONCLUSION:**

From the results of our study and many previous works, it is evident that proper policy for diagnosing, screening, and managing depression and other mental health problems in this patient population can improve the quality and expectancy of life.

Although evidence-based systems for assessment of depression are available but not much work has been done on the best management protocol in such cases, especially the efficacy of drugs used, the indications of psychiatrist referral, and the counseling methods used in local hospitals of Pakistan need to be improved. More data should be available in our hospitals for prescribing antidepressants in CKD patients as they can be harmful to kidneys. The need of the hour is that larger randomized, controlled trials should

be done to determine the optimal approach to the treatment of depression in patients with ESRD.

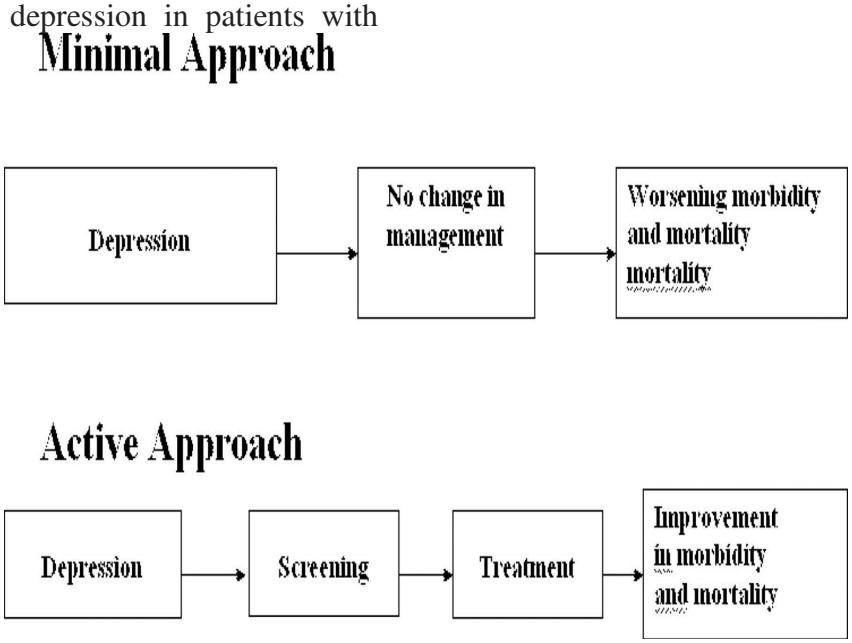


**Fig 7:** Diagram showing the importance of active interventions to improve depression management

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