

**Original Article**

# Depression, Anxiety & Stress among Patients of End Stage Renal Disease Undergoing Hemodialysis

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## Abstract

**Objective** This study is projected to check the prevalence of depression, anxiety and stress in the patients of End Stage Renal Disease (ESRD) undergoing hemodialysis at centers in Hyderabad and investigate the reasons behind it. **Methodology** This observational, multi-center study comprised of a sample of 100 patients of ESRD undergoing hemodialysis selected (via simple random sampling) from different hospitals of Hyderabad. The data was collected using interview based structured questionnaires, after taking informed consent, from 1<sup>st</sup> Dec 2014 to 10<sup>th</sup> Feb 2015. Levels of depression, anxiety and stress were gauged using the DAS scale approved by the Australian Center for Posttraumatic Mental Health. **Results** According to the mean scores obtained, moderate levels of depression and stress while severe levels anxiety prevailed. 69% patients declared diet control rules as bothersome. Although, 50% of respondents were on dialysate for more than a year and 83% underwent dialysis twice per week yet the mean levels of serum albumin and urea were not within normal range. **Conclusion** On the basis of this result we come to know that great numbers of patients of ESRD undergoing hemodialysis were suffering from anxiety depression and stress and uremia.

## Keywords

End Stage Renal Disease, Hemodialysis, Psychological Distress, Depression, Anxiety and Stress

## Introduction

Researchers from far and wide, have recognized depression to be the chief mental health concern among patients struggling with End Stage Renal Disease (ESRD) (Kimmel, 2008 & Hedayati, 2006). Fresh statistics hint towards a staggering twenty to thirty percent prevalence of psychological distress (Depression, anxiety and stress) in the ESRD patients undergoing hemodialysis (Cukor, et al., 2006). Second only to hypertension, depression is the most frequent comorbid diagnosis among ESRD patients (US Renal data system, 2004) but sadly, this grave issue still remains under-researched (Kimmel, 2002) and is rarely, if at all, dealt

with appropriately in patients of ESRD undergoing hemodialysis (Kimmel, et al., 2006). In addition to that, depression has the potential to stall the process of healing and heighten the mortality rate of the ailments (Katon, 2002 & Evans, 2003) and particularly in ESRD (Kimmel, 2003 & 1993).

Anxiety and stress, two of the common comorbid psychological conditions were found slightly mentioned in published literature but we believe that they too, like depression, need to be taken seriously.

In spite of the heightened incidence of depression and the abundant scientific proof of its complications, clinical interventions of

the problem are seldom researched among patients struggling with ESRD (Rabindranath, 2005). While the reason of lack of interventionist approach against anxiety and stress is its absence from academic literature, unavailability of baseline statistics and information about them as significant comorbidities.

One problem however, that may obstruct effective investigation of this issue, is the fact that depressive symptoms are very similar to uremic symptoms, and a clear diagnosis is thus often put in doubt against the backdrop of the uremic illness (Kimmel, 2001, 2004, 2000 & 2002). For instance, it is difficult to identify whether the cognitive dysfunction, encephalopathy or plain irritability is stemming from a psychological cause, uremia, and inadequate dialysis or due to the effect of drugs (Kimmel, et al., 2001, 2004, 2000, 1993) in their work, revealed that anxiety disorder was common in patients struggling with ESRD, but in our thorough and detailed literature review, we did not find any parallels to our own study that screens patients with ESRD for multiple psychiatric complaints and not just one.

We therefore attempted to screen the ESRD patient population for a range of comorbid psychiatric complaints at various hemodialysis centers across the city that cater to the needs of patients from all socio-demographic backgrounds. We did not attempt to dissociate the symptoms of depression from those of uremia, however further research can be conducted using a novel approach based on the identification of depression-specific cognitive schema.

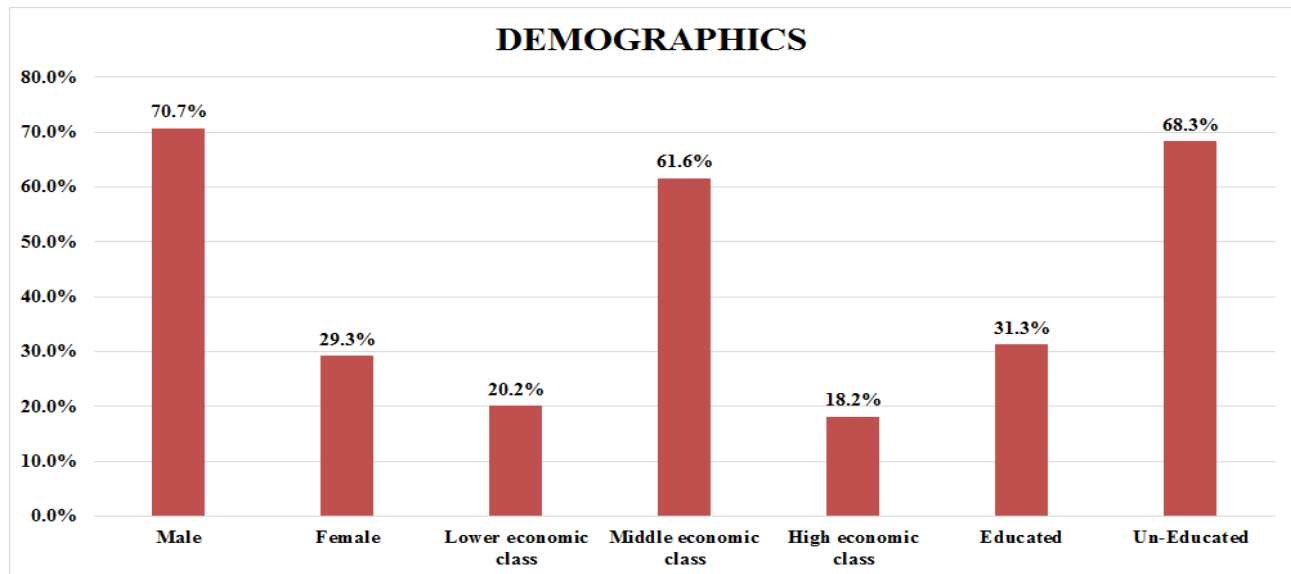
## Methodology

This observational, multi-center study comprised of a sample of 100 patients, undergoing hemodialysis at major professional hemodialysis centers (namely; Maaji hospital, Liaquat University Hospital, K.K Dialysis center, Bhittai Hospital, Rajputana Hospital, Hafeez Memorial Dialysis Centre, Mohinibai hospital and M.K hospital) located in different strata of Hyderabad, selected (via simple random sampling) from different hospitals of Hyderabad. The data was collected using interview based structured questionnaires, after taking informed consent, from 1st Dec 2014 to 10th Feb 2015. Levels of depression, anxiety and stress were gauged using the DAS scale approved by the Australian Center for Posttraumatic Mental Health. Data was analyzed using SPSS v. 19.0 and Microsoft Excel 2013.

## Results

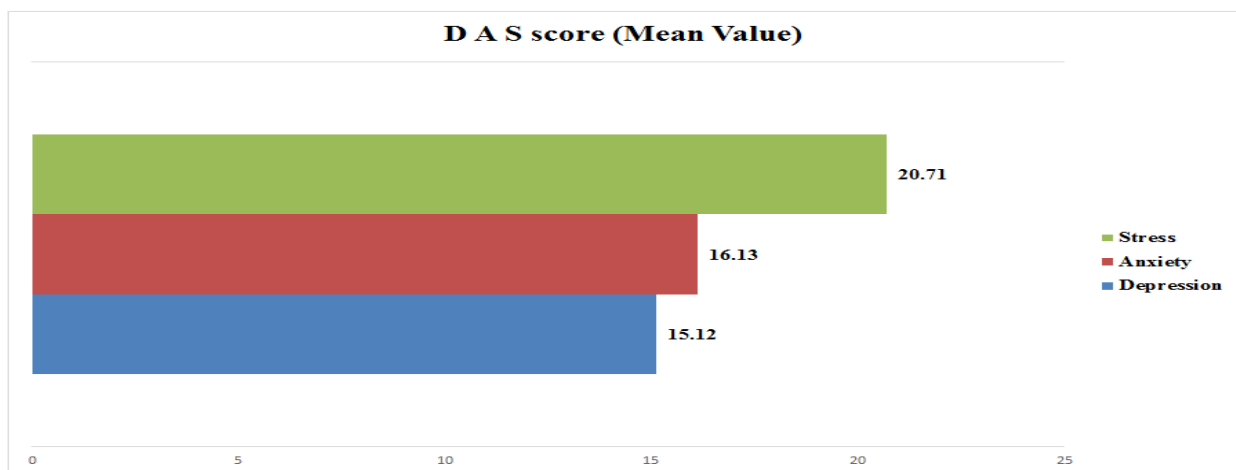
The sample hemodialysis patient population we selected had varied socio-demographic background. We recorded the superficial factors and the figure 1 below depicts them in detail.

Figure 1 showed that a greater proportion of male patients (70.7%) visited hemodialysis centers as compared to females (29.3%). The diseased patients rarely belonged to the higher socioeconomic class (18.2%). Middle class was the predominant socioeconomic fraction that reported at hemodialysis centers (61.6%) and this is worrisome since this fraction that thrives on limited earning. The uneducated patients (68.3%) patients were far more than educated patients (31.3%) owing to our low national literacy rate.



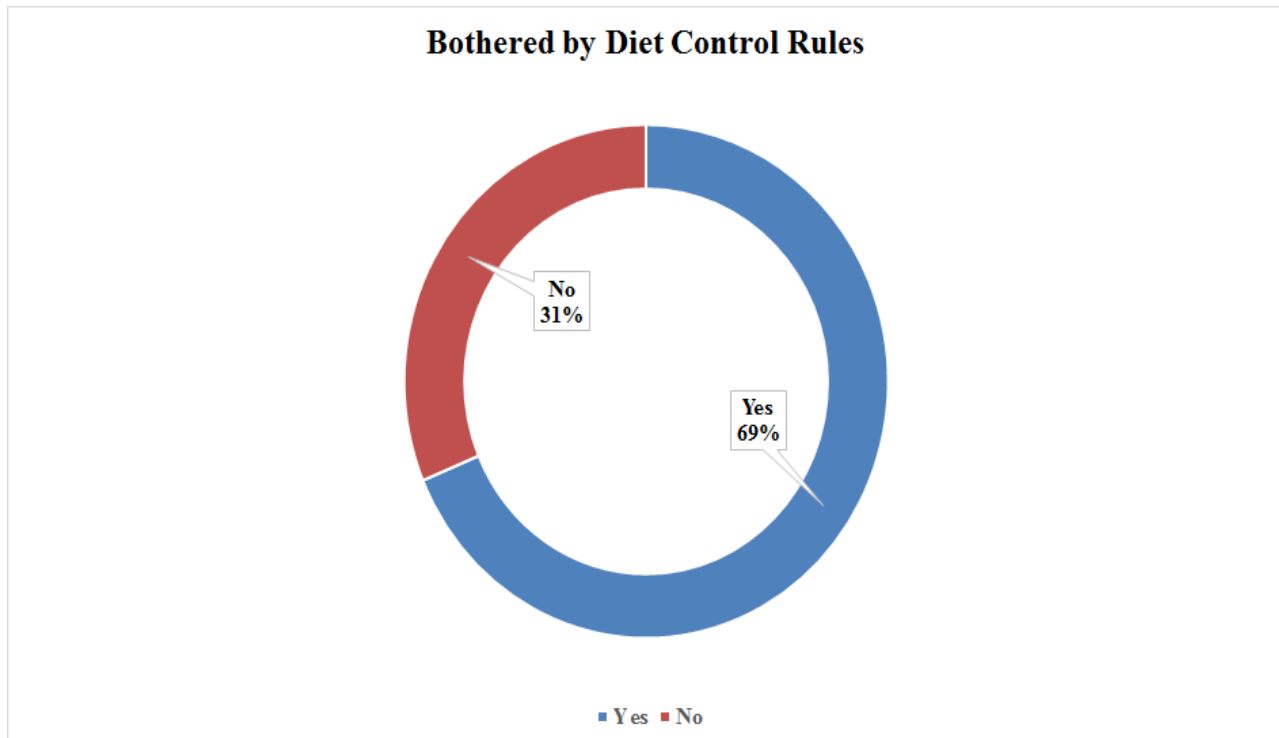
According to the mean scores obtained, moderate levels of depression and stress while severe levels of anxiety prevailed. The combined psychological effect of the three problems takes a big toll on the patients. Figure 2 below further describes this fact.

Figure 2 shows the effects of depression, anxiety and stress were marked in the patient population that we studied. The Depression, Anxiety & Stress Score (DASS), approved by the Australian center for post traumatic health, validated our hypothesis by confirming that these three were indeed present at significant levels.



The factors leading up to such levels of depression, anxiety and stress, other than the chronicity of the illness, were investigated. The findings we reached, showed that the need to frequently visit and pay for the clinics, diet control rules and the chronicity of the illness were the main culprits.

**Figure 3 shows a very handsome percentage of the population (69%) were bothered by the diet control rules and identified them as important stressors that and sources of anxiety that triggered depression. Serious thought must be put into modifying these rules so that they not only ensure good physical but mental health.**



**Figure 4 shows 50% of the respondents were on dialysate for more than a year. The general trend observed is exhibited by the dotted trend-line above. The respondents were divided into 4 groups and the groups increased in size as time increased. We believe that the longer patients endure their medical problems, the greater their chances of falling prey to depression, anxiety and stress.**

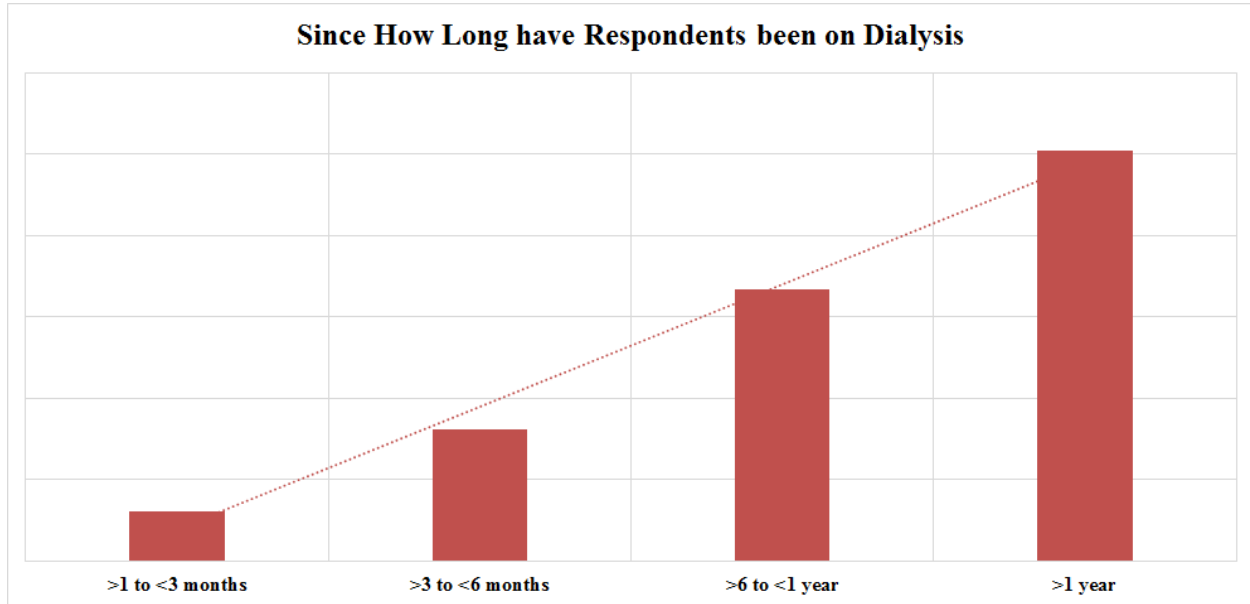


Figure 5 shows that 83% of the patients were required to pay two visits to the dialysis centers per week. 11% of the patients visited the dialysis center almost every other day and only 6% of the patients paid single visits to the dialysis center per week. Dialysis, in itself is not a very comfortable process, and the deed to get a dialysate often indicate failure of treatment, heightened symptoms and problems. Hence the greater the frequency, the greater the psychological impact.

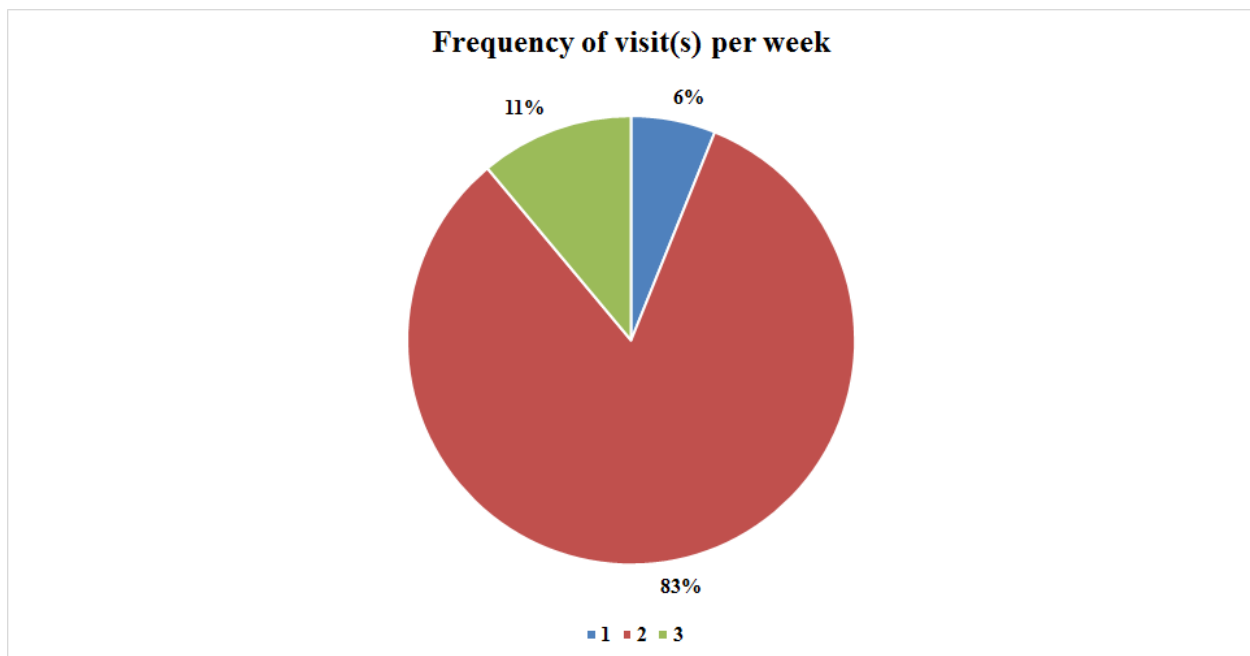
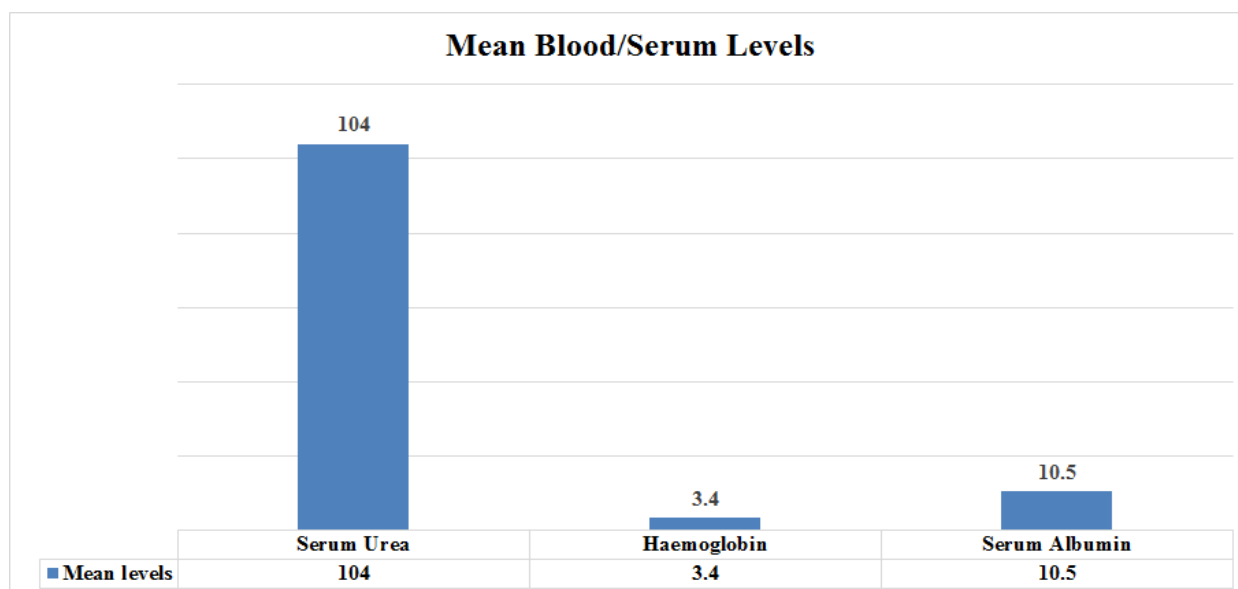


Figure 6 showed Uremia was common as the average serum urea levels were well above normal. Hyper-albuminemia was also marked in the entire sample. Hemoglobin was, however, worryingly low. Such levels, despite the frequent dialysate treatment indicate failure of treatment and hence give birth to negative psychological factors such as depression, anxiety and depression. But, as discussed above, symptoms of uremia match those of depression closely and often overlap. Giving rise to doubt and suspicion over the validity of presence of depression and other closely resembling psychiatric comorbidities.



## Discussion

Our research attempted to investigate a greater range of psychopathology in patients struggling with ESRD than what has been reported earlier in literature. Our sample comprised of urban patients from Hyderabad suffering from End Stage Renal Disease (ESRD) and currently being treated to hemodialysis. A total of one hundred such patients from the different Hemodialysis Center were included in the study and their data was utilized to obtain our results. Our study population reported higher incidence and prevalence of uremia with average levels reaching above 100g/dl, as determined by pathology reports. Rates of depression too far exceeded the levels reported by most authors but it is important

to point out that there have been instances when even higher rates of depression have been reported in literature and a few examples include Watnick et al., (twenty six percent), Hedayati et al., (twenty seven percent) and Kimmel et al., (twenty five percent).

None of the patients diagnosed with depression reported receiving mental health treatment, neither did any patient with a diagnosis of anxiety or stress were currently receiving treatment. This highlights how under-recognized depression, stress and anxiety are and perhaps suggests a tolerance of depression, stress and anxiety by physicians and staff, accepting them as part of the ESRD experience. The average level of

comorbid depression, stress and anxiety (20.7 for depression, 16.1 for stress and 15.1 for anxiety disorder) was found. It is possible that the depression demonstrated in ESRD populations is causally linked to ESRD, because there has been some research suggesting a causative link through inflammatory processes (Cukor, 2000) and a psychodynamic literature linking depression and dialysis.

Literature suggests that the health related quality of life (HrQoL) score of ESRD patients that do not suffer from either depression, anxiety or stress is significantly higher than those patients that do suffer from

### Conclusion

On the basis of our result, we conclude that depression, anxiety and stress are a marked feature in end stage renal disease (ESRD). Often, uremia can mimic the depressive symptoms and may lead to a false diagnosis but the main concern we wish to highlight by this study is towards the psychological health of the patients that both comorbid depression, anxiety, stress and uremia put at a high risk. Further research is advised to differentiate and separately gauge the effects of depression, anxiety, stress & uremia. However, main focus should be directed towards countering the adverse effects caused by psychological comorbidities and uremia that subdue the will to live and the will to recover.

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comorbid psychological distress (i.e. either depression, anxiety or stress), (Kimmel, 2006). This suggests that despite undergoing hemodialysis, patients (without comorbid psychological distress), especially depression, can benefit from a higher quality of life. These results re-iterate the strong and increasingly important need for psychiatric/psychological help for ESRD patients, since clear indications have now been unearthed that such help may not only decrease depression and other forms of psychological distress, but also improve health related quality of life (Cukor, 2005 & Rabindranath, 2005).

### Conflict of interests

All the authors disclosed that there is no competing interest associated with the preparation of this article.

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