A Comparative Study of Depression and Insomnia Among Patients on CAPD vs Hemodialysis

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Background

ESRD burden:
In India 0.2 million new patients are diagnosed with ESRD every year

Undiagnosed and Underevlauated:
Depression and insomnia are common in patients on dialysis.

Dialysis as a stressor :
physical, occupational, financial, social and dietary

Depression prevalence in India:
5.25% - 15% - gen population
34 – 74% in HD
45 – 98% in CAPD.

Insomnia prevalence in India:
4 – 30% in the gen population
39 – 54% on HD
41 – 79% on CAPD.

Rationale for the Study

Limited comparative data on depression and insomnia in HD and PD.

Both modalities have their pros and cons which may affect mental health

CAPD is more physiological,

offers more independence and reduces travel to hospital

HD is intermittent,

offers the option of more socialising, less stress of doing daily dialysis
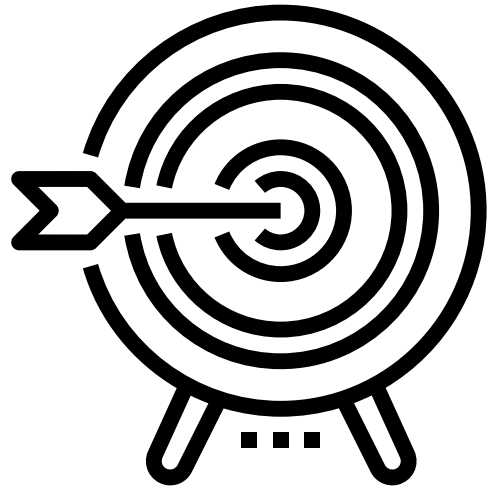
Risk factors for Depression

- Age > 40 yrs
- Female > male
- Longer dialysis vintage
- Malnutrition
- Loneliness
- Poverty

Objectives

Prevalence and severity of depression among HD and PD patients

Prevalence of insomnia among HD and PD patients

Clinical and biochemical correlates of depression in HD vs PD

Study Design

Multicentre, cross-sectional, comparative study conducted from Nov 2024 to Jan 2025 across Indian Armed forces hospitals.

Patients were consecutively recruited and administered the Patient Health Questionnaire (PHQ 9) for depression and insomnia questionnaire by trained psychologists

Assessment Tools

Depression: Patient Health Questionnaire-9 (PHQ-9) – 9 items over past 2 weeks

0 – 4: No depression

5 – 9: Mild depression

10 – 14: Moderate depression

15 – 19: Moderately severe depression

20 – 27: Severe depression

Insomnia: Battery of sleep-related questions

difficulty initiating/maintaining sleep

non-refreshing sleep

Inadequate sleep duration

PHQ-9 Questionnaire for Depression

PHQ-9 depression questionnaire

Name:			Date:			
Over the last 2 weeks, how often have you been bothered by any of the following problems?			**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
Little interest or pleasure in doing things			0	1	2	3
Feeling down, depressed, or hopeless			0	1	2	3
Trouble falling or staying asleep or sleeping too much			0	1	2	3
Feeling tired or having little energy			0	1	2	3
Poor appetite or overeating			0	1	2	3
Feeling bad about yourself, that you are a failure, or that you have let yourself or your family down			0	1	2	3
Trouble concentrating on things, such as reading the newspaper or watching television			0	1	2	3
Moving or speaking so slowly that other people could have noticed; or the opposite, being so fidgety or restless that you have been moving around a lot more than usual			0	1	2	3
Thoughts that you would be better off dead or of hurting yourself in some way			0	1	2	3
Total ___ =			___	+ ___	+ ___	+ ___
PHQ-9 score ≥10: Likely major depression						
Depression score ranges:						
5 to 9: mild						
10 to 14: moderate						
15 to 19: moderately severe						
≥20: severe						
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?			Not difficult at all ___	Somewhat difficult ___	Very difficult ___	Extremely difficult ___

PHQ: Patient Health Questionnaire.

Lab parameters

- Hemoglobin

- Serum Albumin

- Serum Creatinine

Inclusion & Exclusion Criteria
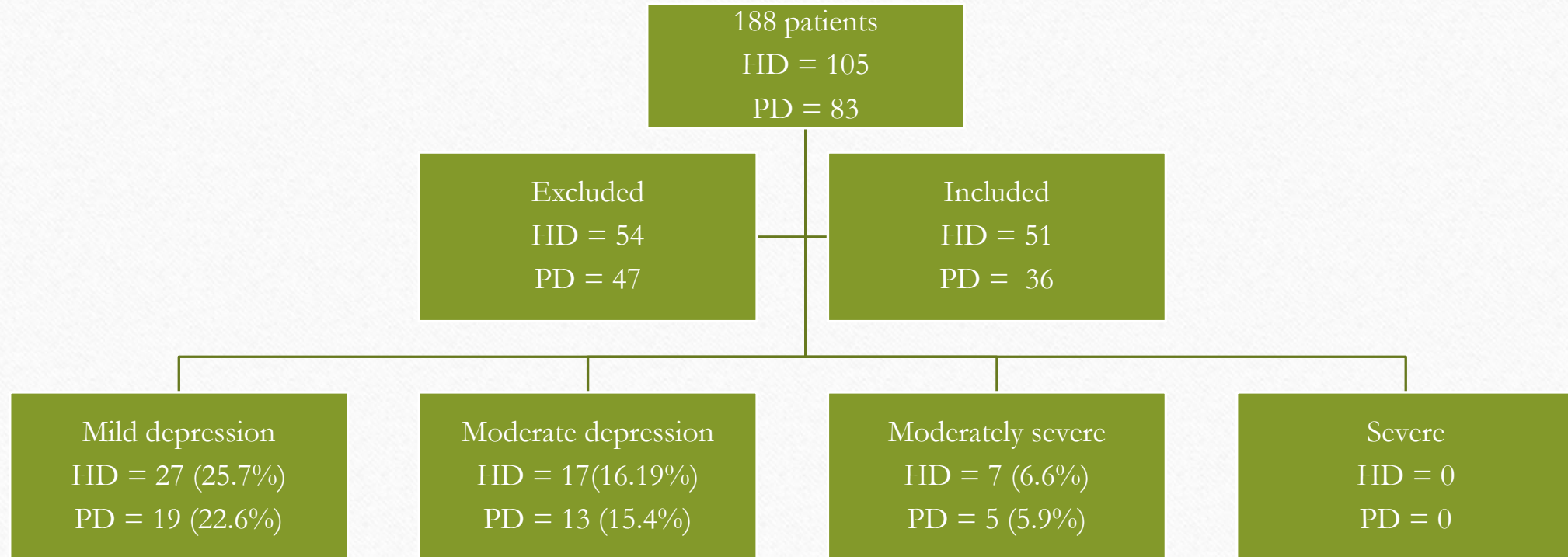
- **INCLUSION**

  1. Age ≥18 years
  2. ≥3 months on dialysis
  3. Life expectancy ≥1 year
  4. PHQ score > 4

- **EXCLUSION**

  1. Pre-existing psychiatric disorders
  2. Chronic infections
  3. Active malignancy
  4. Inability to consent

Study flowchart for depression

RESULTS

Patient Demographics

Variable	HD (n = 105)	PD (n = 83)
Age (years)	45.2 ± 6.8	47.3 ± 8.5
Gender (M: F)	62:43 (1.44)	48:36 (1.33)
Education	Primary school = 6 Secondary school = 96 Graduate = 3	Primary school = 2 Secondary school = 79 Graduate = 3
Dialysis vintage (years)	4	3.5
Income (Rs)	45000	30000
Family size (persons)	4	4

Patient Demographics (PHQ-9 score>4)

Variable	HD (n = 51)	PD (n = 36)
Age (years)	40	37
Gender (M: F)	30:21 (1.42)	23:13 (1.76)
Education	Primary school = 2 Secondary school = 48 Graduate = 1	Primary school = 1 Secondary school = 35 Graduate = 0
Dialysis vintage (years)	3	2.86
Income (Rs)	42000	31000
Family size (persons)	4	4

Depression Prevalence

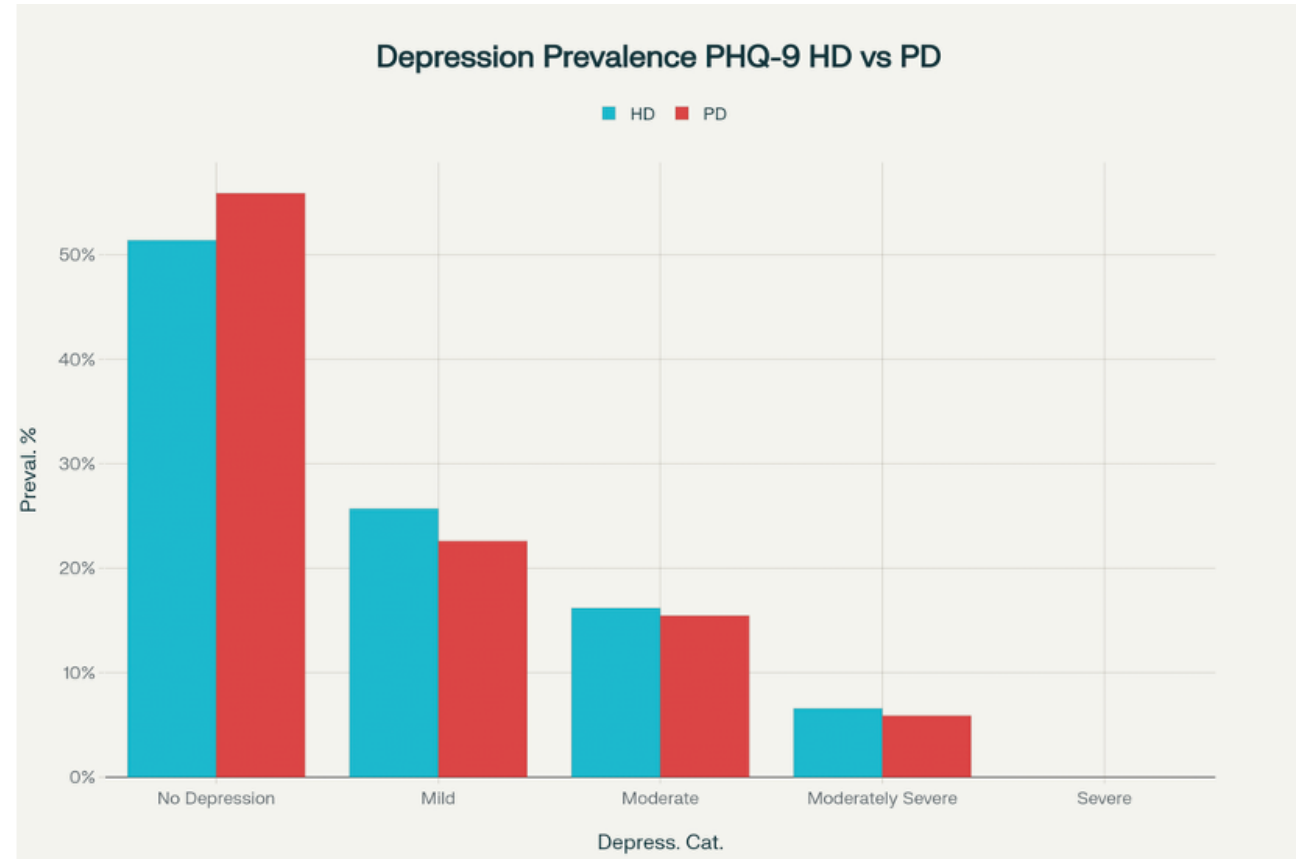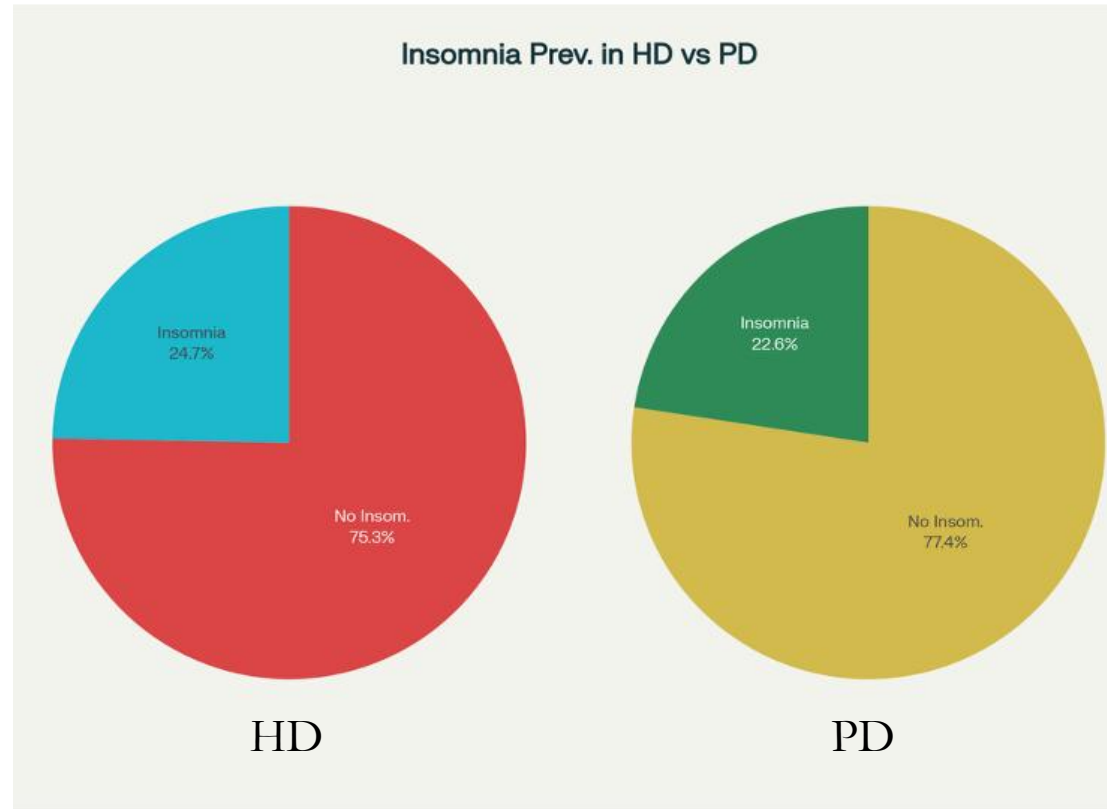| Assessment	HD (n=105)	PD (n=83)	p value
PHQ 9 ≥5 (depressed)	**51 (47.9%)**	**36 (44.6%)**	0.68
PHQ 9 (5 – 10) Mild Depression	27 (25.7%)	18 (22.6%)	0.58
PHQ 9 (10 -14) Moderate Depression	17 (16.2%)	13 (15.7%)	0.92
PHQ 9 (15 – 19) Moderately Severe	7 (6.6%)	5 (6.0%)	0.87
PHQ 9 (≥20) Moderately Severe	0	0	-

Depression Prevalence

Overall prevalence:
- HD: 47.9%
- PD: 44.6%

- Depression was more common in HD but not statistically significant.

Depression Prevelance HD vs PD

Depression Prevalence PHQ-9 HD vs PD

Insomnia Prevalence HD vs PD

Insomnia Prev. in HD vs PD

- HD: 26/105 (24.7%)

- PD: 19/83 (22.8%)

- No significant difference between groups

Biochemical Correlates

Comparison	No Depression Mean ± SD	Moderate/Severe Depression Mean ± SD	p value
Hb HD, g/dL	8.70 (0.56)	8.52 (0.34)	0.04
Hb PD, g/dL	8.50 (0.49)	7.04 (0.71)	**0.01**
Albumin HD, g/dL	3.20 (0.43)	2.69 (0.38)	0.10
Albumin PD, g/dL	3.10 (0.35)	2.38 (0.31)	0.03

Discussion and Clinical Implications

- HD and PD had similar prevalence of Depression and Insomnia

- Majority of patients in both groups had mild to moderate depression

- Nutritional decline (low Hb/albumin) correlates with worse depressive symptoms.

Study Limitations

- Small sample size; power calculations suggest larger cohorts needed

- Use of self-reported measures

- Does not include stress due to Financial burden

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