ORIGINAL ARTICLE

Anxiety and Depression Among the Caregivers of the Haemodialysis Patients and Patient Factors: A Multicentre Study in Bangladesh

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ABSTRACT

A cross-sectional study was conducted in the dialysis units of three tertiary-level hospitals in Dhaka, Bangladesh, between January and December of 2023, to evaluate the levels of anxiety and depression among the caregivers of the haemodialysis patients and patient factors relating to the phenomena. The study was carried out in the National Institute of Kidney Diseases and Urology (NIKDU), Dhaka Medical College Hospital and Shaheed Suhrawardy Medical College Hospital. The study population comprised unpaid, primary family caregivers of patients who were under admission in those hospitals for maintenance haemodialysis. A purposive sampling technique was employed. A total of 310 caregivers participated in this study. Data was collected through face-to-face interviews using a pre-tested, semi-structured questionnaire. The Bengali version of Hospital Anxiety and Depression Scale (HADS), a validated 14-item scale with two sub-scales (7 for anxiety and 7 for depression) was used for screening. This scale consists of questions with a four point Likert scale ranging from 0–3. The raw scores for each subscale were summed as total scores between 0 and 21 and graded as 0–7 (normal), 8–11 (borderline) and 12–21 (abnormal). The prevalence of psychological distress among caregivers was notably high. The majority (73.9%) of caregivers were found within abnormal range of anxiety, while 20.3% were at the borderline and only 5.8% were within the normal range. Similarly, 62.9% of caregivers had abnormal levels of depression, 29.7% were at borderline, and only 7.4% were within the normal range. However, levels of anxiety among caregivers were not associated with patients’ duration of illness, duration and frequency of haemodialysis and treatment cost ($p>0.05$). Similarly, levels of depression among caregivers were not associated with patients’ duration of illness, duration of haemodialysis and treatment cost ($p>0.05$). However, association was only observed between frequency of haemodialysis (per week) and levels of depression among caregivers ($p<0.05$).

Keywords: Anxiety, depression, caregiver, haemodialysis patients, Bangladesh

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INTRODUCTION

Mental health, as defined by the World Health Organization (WHO), is a state of wellbeing where an individual can realize their abilities, cope with life’s stresses, work productively and contribute to their community.[1] The global burden of mental disorders is significant; approximately 15% of the world’s working population is estimated to experience a mental disorder at any given time.[2] Mental disorders, particularly anxiety and depression are leading cause of disability worldwide. They represent the second biggest reason for long-term disability, contributing to loss of healthy life. They drive up health-care costs for affected people and families while inflicting substantial economic losses on a global scale.[2,3] In Bangladesh, the reported prevalence of such mental disorders varied from 6.5 to 31.0% among adult population, exacerbated by a lack of mental health resources and social stigma.[4]

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Chronic kidney disease (CKD) is a major public health concern, with a higher prevalence in Bangladesh (22.48%) than the global average.[5] For patients with end-stage renal disease (ESRD), haemodialysis (HD) is a life-sustaining treatment that imposes a substantial burden not only on the patients but also on their families. Caregivers of haemodialysis patients undertake demanding roles, including managing complex medical treatments, assisting with daily activities, providing transportation, and offering psychological support. This long-term, intensive caregiving role is recognized as a chronic stressor, leading to significant physical and psychological strain.[6-8] Evidence showed that the prolonged duration of dialysis, the high frequency of complications, and the substantial financial cost of treatment contribute to high rates of anxiety and depression among caregivers.[6-9] While the psychological impact of ESRD on patients and their caregivers has been studied worldwide,[6-12] the mental health of such patients and caregivers remains a relatively under-researched area in a developing country like Bangladesh. Besides, caregivers are pivotal to the successful long-term management of haemodialysis patients, their psychological needs are often overlooked though. This can lead to caregiver burnout, impaired quality of life, and subsequently, may negatively affect the quality of care provided to the patient.[8-10] Therefore, assessing the levels of anxiety and depression in this population is crucial to inform the development of targeted support interventions, ultimately improving the wellbeing of both caregivers and patients. Therefore, the present study aims to evaluate the levels of anxiety and depression among the caregivers of the haemodialysis patients and patient factors relating to the phenomena.

METHODS

This cross-sectional study was conducted in the dialysis units of three tertiary-level hospitals – National Institute of Kidney Diseases and Urology (NIKDU), Dhaka Medical College Hospital (DMCH), and Shaheed Suhrawardy Medical College Hospital (ShSMCH) – located in Dhaka, Bangladesh, between January and December of 2023. The study was carried out in the National Institute of Kidney Diseases and Urology (NIKDU), Dhaka Medical College Hospital (DMCH), and Shaheed Suhrawardy Medical College Hospital (ShSMCH). The study population comprised unpaid, primary family caregivers of patients who were under admission in the hospital for maintenance haemodialysis. A purposive sampling technique was employed to recruit participants. The sample size was calculated using the single population proportion formula: ($n=Z^2pq/d^2$), where $Z=1.96$ (95% confidence level), $p=0.28$ (proportion of caregivers with anxiety, as derived from a previous study by Bawazier, Stanely & Suhardjono),[13] $q=(1–p)=0.72$, and $d=0.05$ (margin of error). This yielded a minimum sample size of 310, which was adopted for the study.

Patients’ caregivers were included, if they were aged 18 years or older, had been providing care for at least three months, and provided informed written consent. Individuals with a prior history of any diagnosed mental disorder or those receiving payment for their services were excluded from the study.

Data was collected through face-to-face interviews using a pre-tested, semi-structured questionnaire. Hospital Anxiety and Depression Scale (HADS), a validated 14-item scale with two sub-scales (7 for anxiety and 7 for depression) was used to screen for symptoms.[13] The Bengali version of HADS, which was previously validated in the Bangladeshi population was used as screening tool.[14] The HADS is a self-reported instrument for assessing anxiety and depression symptomatology. This scale consists of questions concerning problems over the past week (e.g., “I still enjoy the things I used to enjoy”) including 2 subscales (i.e., 7-item anxiety and 7-item depression) with a four point Likert scale ranging from 0–3. The raw scores for each subscale are summed as total scores ranging from 0 to 21 for each subscale and score were 0–7 was normal, 8–11 was border line and 12–21 was abnormal case. According to the specific objectives of the study variable were identified then a questionnaire was developed. The cutoff (>8) utilized to screen for symptoms for anxiety and depression for each subscale (following Tasnim et al.).[14]

Collected data was checked for completeness; then it was coded and entered into IBM SPSS Statistics for Windows, version 25 (IBM Corp., Armonk, NY, USA) for analysis. Descriptive statistics was primarily used for this analysis. Categorical variables were summarized using frequencies and percentages. Association between two categorical variables was done using Chi-square (χ^2) test and Fisher’s Exact test, as applicable. Statistical significance was set at $p<0.05$.

RESULTS

A total of 310 caregivers of heamodialysis patients were enrolled in this study. A female predominance was observed (male to female ratio was 1:2.2). The prevalence of psychological distress among caregivers of the haemodialysis patients was notably high. The majority (73.9%) of caregivers were found within the abnormal range of anxiety, while 20.3% were at the borderline and only 5.8% were within the normal range. Similarly, 62.9% of caregivers had abnormal levels of depression, 29.7% were at borderline, and only 7.4% were within the normal range (Table 1). 77.3% of caregivers had abnormal level of anxiety belonged to the patients, who were within 6–10 years of diagnosis of CKD, while 27.1% of caregivers had borderline anxiety belonged to the patients, who were suffering from CKD for >10 years. Similarly, 66.7% of caregivers had abnormal level of depression belonged to the patients, who were suffering from CKD for >10 years, while 31.7% of caregivers had borderline depression belonged to the patients, who were within 1–5 years of diagnosis of CKD. However, none of the differences among groups were statistically significant ($p>0.05$) (Table 2). 75.4% of caregivers having abnormal level of anxiety were related to the patients, who were under haemodialysis for 6–10 years, while 44.4% of caregivers had borderline anxiety belonged to the patients, who were under haemodialysis for >10 years. Similarly, 33.3% of caregivers had abnormal level of depression belonged to the patients, who were under haemodialysis for >10 years, while 69.6% of caregivers had borderline depression belonged to the patients, who were under haemodialysis for 6–10 years. However, none of the differences among groups were statistically significant ($p>0.05$) (Table 3). 77.4% of caregivers having abnormal level of anxiety were related to the patients, who were receiving haemodialysis twice a week, while 54.8% of caregivers had borderline anxiety belonged to the patients, who were receiving haemodialysis thrice a week. However, none of the differences among groups were statistically significant ($p>0.05$). On the other hand, 61.3% of caregivers having abnormal level of anxiety were related to the patients, who were receiving haemodialysis thrice a week, while 65.1% of caregivers had borderline depression, who were related to the patients having haemodialysis twice a week. The differences among groups were statistically significant ($p<0.05$) (Table 4). 87.5% of caregivers having abnormal level of anxiety were related to the patients, who had treatment costs of >40,000 per month (including dialysis and medication costs). Besides, 23.5% of caregivers having borderline anxiety were related to the patients, who had treatment costs of BDT 20001–30000 per month. 64.5% of caregivers having abnormal level of depression were related to the patients, who had treatment costs of BDT 30001–40000 per month, while 68.3% of caregivers having borderline depression belonged to the patients, who had treatment costs of BDT 10001–20000 per month. However, none of the differences among groups were statistically significant ($p>0.05$) (Table 5).

Table 1: Level of anxiety and depression among the caregivers of haemodialysis pateints (n=310)

Variables	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)
Level of anxiety	18 (5.8)	63 (20.3)	229 (73.9)
Level of depression	23 (7.4)	92 (29.7)	195 (62.9)

Table 2: Association between duration of illness (since diagnosis of ESRD) of patients and level of anxiety and depression of caregivers (n=310)

Duration of illness (in years)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1–5	9 (5.2)	38 (21.8)	127 (73.0)	174 (100.0)	χ^2=6.33 $p=0.17^{NS}$
6–10	8 (9.1)	12 (13.6)	68 (77.3)	88 (100.0)	
>10	1 (2.1)	13 (27.1)	34 (70.8)	48 (100.0)	
	Level of depression			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		

Duration of illness (in years)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1–5	10 (5.7)	55 (31.7)	109 (62.6)	174 (100.0)	$\chi^2=3.23$ $p=0.52^{NS}$
6–10	10 (11.4)	24 (27.3)	54 (61.4)	88 (100.0)	
>10	3 (6.3)	13 (27.1)	32 (66.7)	48 (100.0)	

Chi-square test was applied; NS=not significant.

Table 3: Association between duration of haemodialysis of patients and level of anxiety and depression of caregivers (n=310)

Duration of haemodialysis (in years)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1–5	11 (4.7)	49 (21.1)	172 (74.1)	232 (100.0)	$\chi^2=6.59$ $p=0.12^{NS}$
6–10	7 (10.1)	10 (14.5)	52 (75.4)	69 (100.0)	
>10	-	4 (44.4)	5 (55.6)	9 (100.0)	
	Level of depression			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1–5	14 (6.0)	142 (61.2)	76 (32.8)	232 (100.0)	$\chi^2=6.46$ $p=0.15^{NS}$
6–10	8 (11.6)	48 (69.6)	13 (18.8)	69 (100.0)	
>10	1 (11.1)	5 (55.6)	3 (33.3)	9 (100.0)	

Chi-square test was applied; NS=not significant.

Table 4: Association between frequency of haemodialysis (per week) of patients and level of anxiety and depression of caregivers (n=310)

Frequency of haemodialysis (per week)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1	2 (15.4)	2 (15.4)	9 (69.2)	13 (100.0)	$F=6.00$ $p=0.17^{NS}$
2	9 (3.8)	44 (18.7)	182 (77.4)	235 (100.0)	
3	9 (14.5)	34 (54.8)	19 (30.6)	62 (100.0)	
	Level of depression			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		

Frequency of haemodialysis (per week)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
1	1 (7.7)	8 (51.5)	4 (30.8)	13 (100.0)	F=10.59 $p=0.02^{S}$
2	13 (5.5)	153 (65.1)	69 (29.4)	235 (100.0)	
3	7 (11.3)	77 (27.4)	38 (61.3)	62 (100.0)	

Fisher's Exact test was applied; S=significant, NS=not significant.

Table 5: Association between treatment cost of patients and level of anxiety and depression of caregivers (n=310)

Treatment cost per month (in BDT)	Level of anxiety			Total (Percentage)	Statistics
	Normal Frequency (Percentage)	Borderline Frequency (Percentage)	Abnormal Frequency (Percentage)		
10001–20000	7 (4.3)	32 (19.9)	122 (75.8)	161 (100.0)	F=4.59 $p=0.56^{NS}$
20001–30000	9 (8.8)	24 (23.5)	69 (67.6)	102 (100.0)	
30001–40000	2 (6.5)	5 (16.1)	24 (77.4)	31 (100.0)	
>40000	-	2 (12.5)	14 (87.5)	16 (100.0)	
	Level of depression			**Total (Percentage)**	**Statistics**
	Normal Frequency (Percentage)	**Borderline Frequency (Percentage)**	**Abnormal Frequency (Percentage)**		
10001–20000	7 (4.3)	110 (68.3)	44 (27.3)	161 (100%)	F=8.76 $p=0.16^{NS}$
20001–30000	11 (10.8)	55 (53.9)	36 (35.3)	102 (100.0)	
30001–40000	3 (9.7)	20 (25.8)	8 (64.5)	31 (100.0)	
>40000	2 (12.5)	10 (62.5)	4 (25.0)	16 (100.0)	

Fisher's Exact test was applied; NS=not significant.

DISCUSSION

Informal caregivers (usually family members), although unpaid, are most involved in patient care, adaptation, and management of chronic diseases,[15-17] which is also true for a resource-poor country like in Bangladesh. In Bangladesh, we have experienced that family is the best resource for patients receiving haemodialysis. Family members play a fundamental role in disease management and improving the quality of life of patients having ESRD and undergoing haemodialysis treatment. A growing body of international literature highlights the high prevalence of psychological distress as well as anxiety and depression among caregivers of the haemodialysis patients.[6-12,16,18] Those evidence showed association of high levels of anxiety and depression among caregivers with different patient factors and stress levels, mental disorders and quality of life of the caregivers. Care of the patient with a chronic disease by family members imposes psychological pressures due to emotional attachments. This can lead to the emergence of several negative feelings and emotions regarding care provision.[6-8,15-17] Sense of helplessness, being in trouble, sense of captivity in the hospital (resulting from long duration of disease and treatment), frequent referrals to haemodialysis department, patients’ sufferings, financial stress and a sense of boredom with caring are among the negative feelings and emotions about care provision.[7-10,15,16,18]

The gender distribution of the caregivers in this study is consistent with the global trends indicating that caregiving is a role predominantly performed by women (68.7%) in our country, who are often spouses of the patients. The most important finding of this research is the high prevalence of anxiety and depression among caregivers. Among the respondents 73.9% of caregivers were classified in the ‘abnormal’ range for anxiety, and 62.9% were in the ‘abnormal’ range for depression. These figures are substantially higher than those reported in a similar studies done in different countries, as we have mentioned earlier. This disparity may be attributed to several factors unique to the Bangladeshi context, including a more severe scarcity of mental health resources, greater financial strain due to out-of-pocket healthcare costs and a higher density of social stigma associated with both mental illness and chronic disease.[19]

It is noteworthy that some of the patient factors, such as duration of illness, duration of treatment (haemodialysis) or financial costs, were not significantly associated with caregiver anxiety or depression in this study. This suggests that the subjective burden like time commitment and emotional toll may be more critical determinants of mental health than the objective clinical severity of the patients’ conditions.

The findings of this study should be interpreted considering its limitations. The use of a purposive sampling method from three tertiary hospitals in Dhaka city limits the generalizability of the results to all caregivers in Bangladesh. Furthermore, the cross-sectional design captures a single point in time and cannot establish causality between the associated factors and the psychological outcomes.

Last but not the least, understanding the experiences of family members can contribute to providing better family-centered care as one of the primary goals of holistic healthcare and opens a window for interventional research to improve the psychological status of family caregivers in future.

CONCLUSION

The study provides evidence that caregivers of haemodialysis patients in Bangladesh are experiencing a crisis of anxiety and depression at rates in international comparisons. The mental health of these individuals, who are pivotal to the survival and well-being of patients, is being severely compromised, particularly among women, spouses and those from low-income households. There is an urgent and unequivocal need for the healthcare system to integrate routine mental health screening for caregivers and to develop targeted support interventions. These should include psychosocial counselling, financial aid mechanisms and practical support to alleviate the immense burden they carry, thereby safeguarding the health of both the caregiver and the patient they support.

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Authors’ contribution: Concept and design of the study: NRS, MRA; Patient selection and data collection: NRS, MRA, AR; Data compilation and analysis: NRS, ASMN, LS; Manuscript preparation, editing and final submission: NRS, MRA, ASMN, AR, LS.

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