

A Study to Assess Care-Giver Burden and Quality of Life amongst Care-Givers of Patients Undergoing Periodic Haemodialysis

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ABSTRACT

Introduction: A “care-giver” is a person who caters to the needs of another person with limitations due to illness, injury or disability. Excessive care-giver burden causes deterioration of health of care-giver, which in turn affects the patient. So, it is important to prevent build-up of care-giver burden for which it is necessary to understand factors affecting it.

Materials and methods: It is a cross sectional study done in the nephrology outpatient department. Socio demographic details, ZBI (Zant Burden Interview) and WI to QOL BREF scale was used to assess the caregiver burden and QOL.

Results: Out of 60, 37% and 67% male and female participants respectively. There is a negative correlation between WHO-QOL (BREF) and HADS and HARS score which is significant. ZBI score (care giver burden score) was highest for participants caregiving period of >5-10 years.

Conclusion: This study concludes that the care-giver wishes to be furnished with proper social aid and training concerning coping skills as the duration of caregiving period increases.

Key words: Anxiety, Depression, Haemodialysis

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INTRODUCTION

Chronic Kidney Disease (CKD) has emerged as a huge public challenge. It has not stopped at just that, but is slowly assuming catastrophic proportions. According to reliable estimates, the global prevalence of CKD is about 850 million at this point in time [1]. The international society of nephrology states that the number of people requiring renal-replacement therapies is anywhere between 5.3-10.5 million. The most common renal-replacement therapy is “haemodialysis”, which according to conservative estimates is being offered to 3-4 million people worldwide [2]. About 130000 people undergo periodic haemodialysis in India alone and their number is increasing due to increased longevity and other factors. CKD is a complex condition to manage. It is important to understand that the effect of complexities in management of CKD patients undergoing periodic haemodialysis extend way beyond the patient and are expressed on their care-givers too [3]. “Caregiving” can be simply defined as providing help and support to someone in need of it. Although “health-professionals” are also care-givers in the

truest sense, yet in general the term “care-giver” is reserved for non-professional or family care-givers. Here, “care” means spending significant amounts of energy and time to perform tasks that are physically, financially, emotionally and socially demanding. Care-giver burden encompasses the impact on physical, psychological, social, and financial well-being of the care-giver incurred due to caring for the patient [4].

Our study is focused on resolving this issue, by assessing the care-giver burden and quality of life in care-givers of patients undergoing haemodialysis and to bring forth the factors which affect them. We have also tried to find out the factors which lead to psychiatric morbidities in care-givers. We have also analysed the extent of correlation between care-giver burden, quality of life and psychiatric morbidities. We hope that our study would be of help to both health professionals and policy makers for formulating appropriate interventions for care-givers.

MATERIALS AND METHODS

Study design: The study was designed as a cross-sectional study.

Study population: The study involved care-givers of the patients who were undergoing periodic haemodialysis at “department of nephrology, sree balaji medical college and hospital, Chennai”.

Sample size: Sample size=60.

Sampling criteria

Inclusion criteria

- Family care-givers of patients (close relatives who spend significant amount of time taking care of the patient) who are undergoing periodic haemodialysis.
- Care-givers with age more than 18 years, who willingly gave informed consent, were included in the study.

Exclusion criteria

- Care-givers known to be suffering from major chronic medical conditions like bronchial asthma, arthritis, cancer and cardiac disorders were excluded from the study.
- Care-givers with a previously diagnosed psychiatric disorder were excluded from the study.

Study methodology

The steps involved in conducting the study were as following:

- Approval for the study was obtained from “institutional human ethical committee”.

Age

Table 1: Age wise descriptive analysis of study sample.

Age group	Number of participants	Mean age	Median age	Standard deviation	95% Confidence interval
<25 years	5				
25-<45 years	18				
45-60 years	29	45.95 years	46.5 years	13.035 years	45.95 ± 3.298
>60 years	8				
Total	60				

Table 1 shows the age wise description of study sample. 29 participants were in the age group of 45-60 years. 18 participants were aged between 25-<45 years. Minimum

- A pilot-study was carried out to assess feasibility of the study and to know about the requirements.
- Informed consent was obtained from willing participants.
- Data collection was done using data collection instruments.
- Statistical analysis of the data was performed.
- Results and interpretations are being expressed.

Instruments used

- Socio-demographic clinical preformat
- Zant Burden Interview (ZBI)
- WHO-Quality of Life BREF scale (WHO-QOL-BREF)
- Hamilton Rating Scale for Depression (HARF-D)
- Hamilton Anxiety Rating Scale (HARS)

RESULTS

Socio-demographic analysis of study 0079 sample with respect to:

age of participants was 19 years and their maximum age was 82 years. Mean age of participants was 45.95 years.

Care-giving period

Table 2: Care-giving period wise descriptive analysis of study sample.

Care- giving period	Number of participants	Mean care- giving period	Median care- giving period	Standard deviation	95% Confidence interval
0-5 years	31				
>5-10 years	23				
>10 years	6	5.565 years	5 years	3.727 years	5.565 ± 0.943 years
Total	60				

Table 2 shows the care-giving period wise description of study sample. 31 participants had been care-givers for 0-5 years, whereas 23 participants had been care-givers for >5-10 years. 6 participants had care-giving period of >10 years. Minimum care-giving period among participants was 6 months and maximum care-giving period was 15 years. Mean care-giving period was 5.565 years. 18 participants had physical morbidities. Out of these 18 participants, 11 participants suffered from only diabetes mellitus; 3 participants were diagnosed with only hypertension; and 3 participants were both diabetic

and hypertensive. 1 participant among the 18 participants with physical comorbidities was suffering from both diabetes mellitus and hypothyroidism.

Zarit Burden Interview (ZBI) based analysis of study sample with respect to:

Gender

Table 3: Gender-wise analysis of ZBI scores of study sample.

Gender	Mean ZBI score	Median ZBI score	Standard deviation	95% Confidence interval
Male	47.636	43.5	9.767	47.636 ± 4.082
Female	46.763	43	11.244	46.763 ± 3.575
All	47.083	43	10.735	47.083 ± 2.716

Table 3 shows the gender-wise analysis of ZBI scores of study sample. Mean score for male participants was 47.636, whereas mean score for female participants was 46.763.

Table 4: Gender-wise distribution of ZBI categories in study sample.

Gender			
Burden category	Male	Female	All
Little or no burden	0	2	2
Mild to moderate burden	2	2	4
Moderate to severe burden	14	25	39
Severe burden	6	9	15
Total	22	38	60

Table 4 shows the gender-wise distribution of ZBI categories in study sample. 25 female participants fell in the category of moderate to severe burden compared to 14 male participants. 9 female participants scored in the category of severe burden compared to 6 male participants.

No statistically significant association (p-value=0.806) was found between gender of participants and their distribution among ZBI categories.

Age

Table 5: Age wise analysis of ZBI scores of study sample.

Age group	Mean ZBI score	Median ZBI score	Standard deviation	95% Confidence interval
<25 years	39	41	5.761	39 ± 5.051
25 ≤ 45 years	45.166	43	8.732	45.166 ± 4.034
45-60 years	50.344	47	11.039	50.344 ± 4.018
>60 years	44.625	45.5	11.682	44.625 ± 8.096
All	47.083	43	10.735	47.083 ± 2.716

Table 5 shows the age wise analysis of ZBI scores of study sample. Mean score was highest (50.344) for participants aged between 45-60 years, whereas it was lowest (39.000) for participants aged <25 years.

Table 6: Age wise distribution of ZBI categories in study sample.

Age group					
Burden category	<25 Years	25 ≤ 45 Years	45-60 Years	>60 Years	ALL
Little or no burden	0	0	1	1	2
Mild to moderate burden	2	2	0	0	4
Moderate to severe burden	3	14	16	6	39
Severe burden	0	2	12	1	15
Total	5	18	29	8	60

Table 6 shows the age wise distribution of ZBI categories in study sample. 16 participants in age group of 45-60 years fell in the category of moderate to severe burden, whereas 14 participants aged between 25 ≤ 45 years

scored in the same category. 12 participants aged between 45-60 years scored in the category of severe burden.

Statistically significant association (p-value=0.014) was found between age of participants and their distribution among ZBI categories.

Care-giving period

Table 7: Care-giving period wise analysis of ZBI scores of study sample.

Care-giving period	Mean ZBI score	Median ZBI score	Standard deviation	95% Confidence interval
0-5 years	43.612	42	8.146	43.612 ± 2.868
>5-10 years	52.173	61	12.397	52.173 ± 5.067
>10 years	45.5	43.5	7.5	45.500 ± 6.001
All	47.083	43	10.735	47.083 ± 2.716

Table 7 shows the care-giving period wise analysis of ZBI scores of study sample. Mean score was highest (52.173)

for participants with care-giving period of >5-10 years, whereas it was lowest (43.612) for participants with care-giving period of 0-5 years.

Table 8: Care-giving period wise distribution of ZBI categories in study sample.

Burden category	Care-giving period			
	0-5 Years	>5-10 Years	>10 Years	ALL
Little or no burden	1	1	0	2
Mild to moderate burden	1	2	1	4
Moderate to severe burden	27	8	4	39
Severe Burden	2	12	1	15
Total	31	23	6	60

Table 8 shows the care-giving period wise distribution of ZBI categories in study sample. 27 participants with care-giving period of 0-5 years fell in the category of moderate to severe burden, whereas 12 participants with care-giving period of >5-10 years scored in the category of severe burden.

Statistically significant association (p-value=0.0005) was found between care-giving period of participants and their distribution among ZBI categories.

Physical morbidities

Table 9: Physical morbidities-wise analysis of ZBI scores of study sample.

Physical morbidities	Mean ZBI score	Median ZBI score	Standard deviation	95% Confidence interval
Present	48.388	46.5	7.265	48.388 ± 3.357
Absent	46.523	42.5	11.872	46.523 ± 3.591
All	47.083	43	10.735	47.083 ± 2.716

Table 9 shows the physical morbidities-wise analysis of ZBI scores of study sample. Mean score for participants

who had physical morbidities was 48.388, whereas mean score for participants without physical morbidities was 46.523.

Table 10: Physical morbidities-wise distribution of ZBI categories in study sample.

Burden category	Physical morbidities		
	Present	Absent	All
Little or no burden	0	2	2

Mild to moderate burden	0	4	4
Moderate to severe burden	15	24	39
Severe burden	3	12	15
Total	18	42	60

Table 10 shows the physical morbidities wise distribution of ZBI categories in study sample. 15 participants with physical morbidities fell in category of moderate to severe burden, whereas 24 participants without physical morbidities fell in category of severe burden.

Gender

Table 11: Gender-wise analysis of W.H.O.-QoL BREF scores of study sample.

Gender	Mean W.H.O.-QoL BREF score	Median W.H.O.-QoL BREF score	Standard deviation	95% Confidence interval
Male	63.318	65.5	16.57	63.318 ± 6.924
Female	56.473	57	14.41	56.473 ± 4.582
All	58.983	58	15.591	58.983 ± 3.945

Table 11 shows the gender-wise analysis of W.H.O.-QoL BREF scores of study sample. Mean score for male

without physical morbidities scored in the same category.

World Health Organisation-Quality of Life BREF (W.H.O.-QoL BREF) based analysis of study sample with respect to:

participants was 63.318, whereas mean score for female participants was 56.473.

Table 12: Gender-wise distribution of W.H.O.-QoL BREF categories in study sample.

Gender			
W.H.O.-QoL BREF category	Male	Female	All
≤ 60/120	10	29	39
>60/120	12	9	21
Total	22	38	60

Table 12 shows the gender-wise distribution of W.H.O.-QoL BREF categories in study sample. 29 female participants scored in the category of ≤ 60/120 compared to 10 male participants. 9 female participants scored in the category of >60/120 compared to 12 male participants.

Statistically significant association (p-value=0.024) was found between gender of participants and their distribution among W.H.O.-QoL BREF categories.

Age

Table 13: Age wise analysis of W.H.O.-QoL BREF scores of study sample.

Age group	Mean W.H.O.-QoL BREF score	Median W.H.O.-QoL BREF score	Standard deviation	95% Confidence interval
<25 years	80.4	79	9.35	80.400 ± 8.196
25 ≤ 45 years	63.055	60	12.664	63.055 ± 5.851
45-60 years	51.103	54	12.554	51.103 ± 4.569
>60 years	65	65.5	15.842	65.000 ± 10.979
All	58.983	58	15.591	58.983 ± 3.945

Table 13 shows the age wise analysis of W.H.O.-QoL BREF scores of study sample. Mean score was highest (80.400) for participants aged <25 years, whereas it was lowest (51.103) for participants aged 45-60 years.

Table 14: Age wise distribution of W.H.O.-QoL BREF categories in study sample.

W.H.O.-QoL BREF	Age group				All
	<25 years	25 ≤ 45 years	45-60 years	>60 years	
CATEGORY					
≤ 60/120	0	9	27	3	39
>60/120	5	9	2	5	21
Total	5	18	29	8	60

Table 14 shows the age wise distribution of W.H.O.-QoL BREF categories in study sample. 27 participants in age group of 45-60 years scored in the category of ≤ 60/120, whereas 9 participants aged between 25 ≤ 45 years scored in the same category. 2 participants aged between 45-60 years scored in the category of severe >60/120.

Statistically significant association (p-value=0.000004) was found between age of participants and their distribution among W.H.O.-QoL BREF categories.

Care-giving period

Table 15: Care-giving period wise analysis of W.H.O.-QoL BREF scores of study sample.

Care- giving period	Mean W.H.O.- QoL BREF score	Median W.H.O.- QoL BREF score	Standard deviation	95% Confidence interval
0-5 years	63.032	58	12.418	63.032 ± 4.372
>5-10 years	51.304	43	16.321	51.304 ± 6.670
>10 years	67.5	71	15.152	67.500 ± 12.124
All	58.983	58	15.591	58.983 ± 3.945

Table 15 shows the care-giving period wise analysis of W.H.O.-QoL BREF scores of study sample. Mean score was highest (67.500) for participants with care-giving period

of >10 years, whereas it was lowest (51.304) for participants with care-giving period of >5-10 years.

Table 16: Care-giving period wise distribution of W.H.O.-QoL BREF categories in study sample.

W.H.O.-QoL BREF	Care-giving period			All
	0-5 years	>5-10 years	>10 years	
Category				
≤ 60/120	18	19	2	39
>60/120	13	4	4	21
Total	31	23	6	60

Table 16 shows the care-giving period wise distribution of W.H.O.-QoL BREF categories in study sample. 19 participants with care-giving period of >5-10 years scored in the category of ≤ 60/120, whereas 18

participants with care-giving period of 0-5 years scored in the same category. 13 participants with care-giving period of 0-5 years scored in the category of >60/120. Statistically significant association (p-value=0.039) was found between care-giving period of participants and their distribution among W.H.O.-QoL BREF categories.

Physical morbidities

Table 17: Physical morbidities-wise analysis of W.H.O.-QoL BREF scores of study sample.

Physical morbidities	Mean W.H.O.-QoL BREF score	Median W.H.O.-QoL BREF score	Standard deviation	95% Confidence interval
Present	53.5	55.5	9.245	53.500 ± 4.271
Absent	61.333	59	17.094	61.333 ± 5.170
All	58.983	58	15.591	58.983 ± 3.945

Table 17 shows the physical morbidities-wise analysis of W.H.O.-QoL BREF scores of study sample. Mean score for participants who had physical morbidities was 53.500,

whereas mean score for participants without physical morbidities was 61.333.

Table 18: Physical morbidities-wise distribution of W.H.O.-QoL BREF categories in study sample.

W.H.O.-QoL BREF	Physical morbidities		
	Present	Absent	All
Category			
≤ 60/120	16	23	39
>60/120	2	19	21
Total	18	42	60

Table 18 shows the physical morbidities-wise distribution of W.H.O.-QoL BREF categories in study sample. 16 participants with physical morbidities scored in category of ≤ 60/120, whereas 23 participants without physical morbidities scored in the same category. 19

participants without physical morbidities scored in category of >60/120.

Statistically significant association (p-value=0.016) was found between presence or absence of physical morbidities in participants and their distribution among W.H.O.-QoL BREF categories.

Gender

Hamilton Depression Rating Scale (HDRS) based analysis of study sample with respect to:

Table 19: Gender-wise analysis of HDRS scores of study sample.

Gender	Mean HDRS score	Median HDRS score	Standard deviation	95% Confidence interval
Male	5.954	3.5	4.847	5.954 ± 2.026
Female	8.815	8	5.481	8.815 ± 1.743
All	7.766	8	5.435	7.766 ± 1.375

Table 19 shows the gender-wise analysis of HDRS scores of study sample. Mean score for male participants was 5.954,

whereas mean score for female participants was 8.815.

Table 20: Gender-wise distribution of HDRS categories in study sample.

HDRS category	Gender		
	Male	Female	ALL
Normal	15	12	27
Mild depression	4	18	22
Moderate depression	3	5	8
Severe depression	0	3	3
Total	22	38	60

Table 20 shows the gender-wise distribution of HDRS categories in study sample. 18 female participants fell in the category of mild depression compared to 4 male participants. 12 female participants scored in the

category of normal compared to 15 male participants.

Statistically significant association (p-value=0.022) was found between gender of participants and their distribution among HDRS categories.

Age**Table 21: Age wise analysis of HDRS scores of study sample.**

Age group	Mean HDRS score	Median HDRS score	Standard deviation	95% Confidence interval
<25 years	2.4	2	2.059	2.400 ± 1.805
25 ≤ 45 years	6.944	5	5.115	6.944 ± 2.363
45-60 years	9.931	9	5.735	9.931 ± 2.087
>60 years	6.625	6	4.385	6.625 ± 3.039
All	7.766	8	5.435	7.766 ± 1.375

Table 21 shows the age wise analysis of HDRS scores of study sample. Mean score was highest (9.931) for participants aged between 45-60 years, whereas it was lowest (2.400) for participants aged <25 years.

Table 22: Age wise distribution of HDRS categories in study sample.

HDRS Category	Age group				
	<25 years	25 ≤ 45 years	45-60 years	>60 years	All
Normal	5	10	7	5	27
Mild depression	0	7	13	2	22
Moderate depression	0	1	6	1	8
Severe depression	0	0	3	0	3
Total	5	18	29	8	60

Table 22 shows the age wise distribution of HDRS categories in study sample. 13 participants in age group of 45-60 years fell in the category of mild depression, whereas 7 participants aged between 25 ≤ 45 years scored in the same category. 3 participants aged between 45-60 years scored in the category of severe depression.

No statistically significant association (p-value=0.078) was found between age of participants and their distribution among HDRS categories.

Care-giving period**Table 23: Care-giving period wise analysis of HDRS scores of study sample.**

Care-giving period	Mean HDRS score	Median HDRS score	Standard deviation	95% Confidence interval
0-5 years	6.225	7	4.148	6.225 ± 1.460
>5-10 years	10.478	11	6.219	10.478 ± 2.542
>10 years	5.333	5	3.448	5.333 ± 2.759
All	7.766	8	5.435	7.766 ± 1.375

Table 23 shows the care-giving period wise analysis of HDRS scores of study sample. Mean score was highest (10.478) for participants with care-giving period of

>5-10 years, whereas it was lowest (5.333) for participants with care-giving period of >10 years.

Table 24: Care-giving period wise distribution of HDRS categories in study sample.

HDRS category	Care-giving period			
	0-5 years	>5-10 years	>10 years	All
Normal	16	7	4	27
Mild depression	13	7	2	22
Moderate depression	2	6	0	8
Severe depression	0	3	0	3
Total	31	23	6	60

Table 24 shows the care-giving period wise distribution of HDRS categories in study sample. 13 participants with care-giving period of 0-5 years fell in the category of mild depression, whereas 7 participants with care-giving period of >5-10 years scored in the same category. 6 participants with care-giving period of >5-10 years fell in

category of moderate depression. No statistically significant association (p-value=0.078) was found between care-giving period of participants and their distribution among HDRS categories.

Physical morbidities

Table 25: Physical morbidities-wise analysis of HDRS scores of study sample.

Physical morbidities	Mean HDRS score	Median HDRS score	Standard deviation	95% Confidence interval
Present	9.277	8	3.969	9.277 ± 1.834
Absent	7.119	5.5	5.835	7.119 ± 1.765
All	7.766	8	5.435	7.766 ± 1.375

Table 25 shows the physical morbidities-wise analysis of HDRS scores of study sample. Mean score for participants

who had physical morbidities was 9.277, whereas mean score for participants without physical morbidities was 7.119.

Table 26: Physical morbidities-wise distribution of HDRS categories in study sample.

Physical morbidities			
HDRS category	Present	Absent	All
Normal	3	24	27
Mild depression	12	10	22
Moderate depression	2	6	8
Severe depression	1	2	3
Total	18	42	60

Table 26 shows the physical morbidities-wise distribution of HDRS categories in study sample. 12 participants with physical morbidities fell in category of mild depression, whereas 10 participants without physical morbidities scored in the same category. 24 participants without physical morbidities had normal scores.

Statistically significant association (p-value=0.006) was found between presence or absence of physical morbidities in participants and their distribution among HDRS categories

Hamilton Anxiety Rating Scale (HARS) based analysis of study sample with respect to:

Gender

Table 27: Gender-wise analysis of HARS scores of study sample.

Gender	Mean HARS score	Median HARS score	Standard deviation	95% Confidence interval
Male	12.045	8	8.126	12.045 ± 3.396
Female	19.131	24	10.374	19.131 ± 3.299
All	16.533	16.5	10.2	16.533 ± 2.581

Table 27 shows the gender-wise analysis of HARS scores of study sample. Mean score for male participants was

12.045, whereas mean score for female participants was 19.131.

Table 28: Gender-wise distribution of HARS categories in study sample.

Gender			
HARS category	Male	Female	All
No to mild anxiety	16	14	30
Mild to moderate anxiety	4	5	9
Moderate to severe anxiety	2	17	19
Severe anxiety	0	2	2
Total	22	38	60

Table 28 shows the gender-wise distribution of HARS categories in study sample. 17 female participants fell in the category of moderate to severe anxiety compared to 2 male participants. 2 female participants scored in the category of severe anxiety.

Statistically significant association (p-value=0.006) was found between gender of participants and their distribution among HARS categories.

Age

Table 29: Age wise analysis of HARS scores of study sample.

Age group	Mean HARS score	Median HARS score	Standard deviation	95% Confidence interval
<25 years	5.8	5	3.37	5.800 ± 2.954
25 ≤ 45 Years	13.222	8	8.689	13.222 ± 4.014
45-60 years	20.965	25	9.803	20.965 ± 3.568
>60 years	14.625	12	9.136	14.625 ± 6.332
All	16.533	16.5	10.2	16.533 ± 2.581

Table 29 shows the age wise analysis of HARS scores of study sample. Mean score was highest (20.965) for

participants aged between 45-60 years, whereas it was lowest (5.800) for participants aged <25 years.

Table 30: Age wise distribution of HARS categories in study sample.

HARS CATEGORY	Age group				All
	<25 years	25 ≤ 45 years	45-60 years	>60 years	
No to mild anxiety	5	12	8	5	30
Mild to moderate anxiety	0	3	5	1	9
Moderate to severe anxiety	0	3	14	2	19
Severe anxiety	0	0	2	0	2
Total	5	18	29	8	60

Table 30 shows the age wise distribution of HARS categories in study sample. 8 participants in age group of 45-60 years fell in the category of mild to moderate anxiety, whereas 12 participants aged between 25 ≤ 45 years scored in the same category. 14 participants aged between 45-60 years scored in the category of moderate to severe anxiety.

No statistically significant association (p-value=0.067) was found between age of participants and their distribution among HARS categories.

Care-giving period

Table 31: Care-giving period wise analysis of HARS scores of study sample.

Care-giving period	Mean HARS score	Median HARS score	Standard deviation	95% Confidence interval
0-5 years	13.967	10	9.092	13.967 ± 3.201
>5-10 years	21.173	26	10.651	21.173 ± 4.353
>10 years	12	10	6.429	12.000 ± 5.144
ALL	16.533	16.5	10.2	16.533 ± 2.581

Table 31 shows the care-giving period wise analysis of HARS scores of study sample. Mean score was highest (21.173) for participants with care-giving period of

>5-10 years, whereas it was lowest (12.000) for participants with care-giving period of >10 years.

Table 32: Care-giving period wise distribution of HARS categories in study sample.

HARS category	Care-giving period			
	0-5 years	>5-10 years	>10 years	All
No to mild anxiety	19	7	4	30
Mild to moderate anxiety	4	3	2	9
Moderate to severe anxiety	8	11	0	19
Severe anxiety	0	2	0	2
Total	31	23	6	60

Table 32 shows the care-giving period wise distribution of HARS categories in study sample. 8 participants with care-giving period of 0-5 years fell in the category of moderate to severe anxiety, whereas 11 participants with care-giving period of >5-10 years scored in the same

category. 2 participants with care-giving period of >5-10 years fell in category of severe anxiety. 19 participants with care-giving period of 0-5 years scored in category of no to mild anxiety. Statistically significant association (p-value=0.045) was found between care-giving period of participants and their distribution among HARS categories.

Physical morbidities

Table 33: Physical morbidities-wise analysis of HARS scores of study sample.

Physical morbidities	Mean HARS score	Median HARS score	Standard deviation	95% Confidence interval
Present	22.388	25	7.454	22.388 ± 3.444
Absent	14.023	8	10.189	14.023 ± 3.082
All	16.533	16.5	10.2	16.533 ± 2.581

Table 33 shows the physical morbidities-wise analysis of HARS scores of study sample. Mean score for participants

who had physical morbidities was 22.388, whereas mean score for participants without physical morbidities was 14.023.

Table 34: Physical morbidities-wise distribution of HARS categories in study sample.

HARS category	Physical morbidities		
	Present	Absent	All
No to mild anxiety	4	26	30
Mild to moderate anxiety	3	6	9
Moderate to severe anxiety	10	9	19
Severe anxiety	1	1	2
Total	18	42	60

Table 34 shows the physical morbidities-wise distribution of HARS categories in study sample. 10 participants with physical morbidities fell in category of moderate to severe anxiety, whereas 9 participants without physical morbidities scored in the same category. 6 participants without physical morbidities fell in category of mild to moderate anxiety. 26 participants without physical morbidities scored in category of no to mild anxiety.

DISCUSSION

Our study sample consisted of 37% male participants and 63% female participants. The study by Nagarathnam,

et al. had a sample with 84% of care-givers being females. This observation of majority of care-givers being of female gender was consistent with most other studies. In the study by Joy, et al. 30% of participants had been in caregiving role for <1 year, whereas 36.70% of participants had been care-givers for a duration of 1-3 years [5]. 30% of care-givers suffered from one or more physical morbidities, whereas 70% of them had no physical morbidities [6]. In our study which is in accordance with a study done by Hoang, et al. 36.50% of participants had been suffering from chronic health conditions, while the study by Cagan, et al. reported that 45.39% of participants were suffering from at least one chronic health condition. Thus, socio-demographic

description of the current study was in tune with previous studies, especially those that had been conducted in India [7].

A statistically significant strong negative correlation was established between W.H.O.-QOL BREF scores and HDRS scores ($r=-0.896$, $p\text{-value} \leq 0.000001$). The study by Shukri, et al. reported comparable findings, where an inverse relationship was found between quality of life and presence of depression [8]. Thus, with decline in quality of life the extent of depression increases. This may be a reflection of effect of caregiver burden on quality of life. Mean ZBI scores was highest for participants aged 45-60 years (50.344) than those aged <25 years (39.000) significant association ($p=0.014$) was found between the age of participants and their distribution among ZBI categories. A statistically significant strong negative correlation was established between W.H.O.-QoL BREF scores and HARS scores ($r=-0.852$, $p\text{-value} \leq 0.000001$). The study by Shukri, et al. presented similar findings, where an inverse relationship was observed between quality of life and presence of anxiety. Thus, with decline in quality of life the extent of anxiety increases [9]. This may be a reflection of effect of caregiver burden on quality of life. Thus, status of mental health is deteriorated with decline in quality of life. This could be caused due to the effect of caregiver burden on quality of life

CONCLUSION

Excess caregiver burden causes deterioration in quality of life of the care-giver, which causes depression and anxiety in them. Hence, the care-giver needs to be provided with proper social support and education regarding coping skills. A multi-faceted approach would be required to improve the quality of life of care-givers, which in turn would improve quality of life of patients.

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