

A longitudinal study on the psychological effects of hemodialysis treatment on primary caregivers of chronic renal failure patients

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Abstract

Background: Chronic diseases required a prolonged period of supervision, observation, and predominant care. We often measure the effect of diseases on patients as well as on professional caregivers but tend to forget to determine disease effects on primary caregivers. Taking care of patients suffering from chronic disease produces physical as well as the psychological impact on caregivers. **Aim:** Assessment of psychological effects of hemodialysis treatment on primary caregivers of chronic renal failure patients. **Methods:** Present longitudinal study conducted at tertiary care teaching of a hospital. Total 148 primary caregivers of renal failure patients twice interviewed. Out of that; 75 were primary caregivers of patients undergoing pharmacotherapy with hemodialysis (group A) and 73 were those whose patients were on pharmacotherapy alone (group B). The Zarit burden interview tool was used to assess psychological effects. **Results:** Out of 148 primary caregivers males and females were 72.97% (108) and 27.07% (40) respectively. Initially in primary caregivers of group A; 41.3% and 54.7% had mild to moderate and moderate to severe type of disease burden while on second interview 57.3% and 34.7% responded to have moderate to severe and severe type of disease burden respectively. In group B initially, only 9.6% informed to have moderate to severe type of disease burden and remaining had either little or mild to moderate type of burden while on follow up interview 49.3% and 35.6% had mild to moderate and moderate to severe type of disease burden respectively. **Conclusion:** Hemodialysis with pharmacotherapy could increase the disease burden on primary caregivers as compared to pharmacotherapy alone.

Key Word: hemodialysis.

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INTRODUCTION

As per commission on Chronic Illness in USA; chronic diseases are the one which are permanent, caused by non reversible pathology, leaves residual disability, requires

rehabilitation and long period of supervision, observation and care.¹Chronic kidney disease affects around 10% population around the world². The prevalence of psychosocial problems in chronic dialysis patients such as anxiety, depression, hostility, and suicidal tendencies are relatively common.³But, Illness are never an isolated life event; like patients suffered, his family and caregivers also endure consequences. Often caregiver receive little attention and the main focus is on the patient. Taking care of patients suffering from chronic disease produces physical as well as the psychological impact on caregivers. We often measure the effect of diseases on patients as well as on professional caregivers but tend to forget to determine disease effects on primary caregivers. With this background present study conducted on primary caregivers, who accompanied chronic renal failure

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patients for the hemodialysis treatment at tertiary care teaching hospital.

OBJECTIVES

1. Assessment of psychological effects of ‘hemodialysis with pharmacotherapy’ and ‘pharmacotherapy only’ treatment on primary care givers of chronic diseases patients
2. Compare the psychological effects of primary care givers of patients of hemodialysis with pharmacotherapy and pharmacotherapy only treatment.

MATERIAL AND METHODS

Present study conducted after the approval of Institutional and Ethical Committee (IEC). **Study design:** Observational. **Study type:** Descriptive Longitudinal Study. **Study setting:** Hemodialysis unit and Medicine OPD of Bharti Hospital of Bharti Vidyapeeth; (Deemed to be University) **Study population:** All Primary caregivers who accompanying patients of chronic kidney failure patients for haemodialysis treatment. Primary caregivers who accompanying patients of chronic kidney failure patients for treatment of pharmacotherapy (only) to medicine OPD. **Study Period:** 18 months (August 2019 to December 2020).

Inclusion criteria's: Primary caregivers of newly diagnosed patients. Primary caregivers of patients who were about to start hemodialysis treatment. Primary caregivers of 18 to 60 years of age.

Exclusion criteria's: Primary caregivers who were not willing to give informed consent. Caregivers who were not engaged as a full time carer of patient. Caregivers who has history of psychiatry morbidity, substance abuse etc. Sampling Method: Simple random sampling method used.

By assuming 50% prevalence of psychiatric morbidity among primary care givers of chronic renal failure

patients. At 95% confidence level; Z:1.96. α 5% and d: 0.13. The calculated sample size was 57; By considering 10% loss to follow up; $(57+6)= 63$ was minimum calculated sample size, which was rounded to 70

Sample Size



Data collection: After the diagnosis and deciding the line of management by consultant nephrologist; primary caregivers of the chronic renal failure patients were screened as per inclusion and exclusion criteria's. Those who were found to be eligible to participate, were grouped and briefed about the aim and objectives of the present study in their local language.

Group A: Primary caregivers of patients who were on hemodialysis and pharmacotherapy

Group B: Primary caregivers of patients who were on pharmacotherapy only

After assuring the confidentiality of data and obtaining informed consent; primary care givers were twice interviewed according to pre- structured and pre-determined questionnaire.

Part 1: Basic Information	Part 2: Psychiatric disorders	Part 3: Burden assessment and Quality of life
<ul style="list-style-type: none"> Socio- demographic data 	<ul style="list-style-type: none"> Standard interview including mental status examination 	<ul style="list-style-type: none"> Zarit Burden4 WHO well being index5

Statistical analysis

Data entry and coding was done in Microsoft excel and SPSS 22.0 statistical software was used for descriptive and inferential statistical analysis

OBSERVATION AND RESULTS

In present study; Primary caregivers of patients who were on haemodialysis and pharmacotherapy {Group I (n=75)}, and who were only on pharmacotherapy {Group II (n=73)}, after 06 months of first interview were again interviewed.

Table 1: Age and gender wise distribution of the participants (n=148)

Sr. No.	Age group (Yrs.)	Sex		Total
		Female	Male	
1	20 to 25	00	06	06
2	26 to 30	10	02	12
3	31 to 35	10	06	16
4	36 to 40	08	24	32
5	41 to 45	02	22	24
6	46 to 50	04	20	24
7	≥ 51 Yrs.	06	28	34
	Total	40 (27.02%)	108 (72.97%)	148
	Mean Yrs.± Sd.	38.20 ± 8.51	43.94 ± 9.23	

Chi-square (χ²) test: 38.86, d.f:06, P:0.0001 Significant

Table 2a: Age and Gender wise distribution (Group I)

Sr. No.	Age	Gender		Total
		Female	Male	
1.	20 to 25	00	03	03
2.	26 to 30	05	01	06
3.	31 to 35	05	03	08
4.	36 to 40	04	12	16
5.	41 to 45	01	11	12
6.	46 to 50	02	10	12
7.	≥ 51 Yrs.	03	15	18
	Total	20	55	75
	Mean ± SD	38.20±8.6	44.12±9.2	

Chi-square (χ²) test:19.81, d.f:06 P:0.003 Significant

Table 2b: Age and Gender wise distribution (Group II)

Sr. No.	Age	Gender		Total
		Female	Male	
1.	20 to 25	00	03	03
2.	26 to 30	05	01	06
3.	31 to 35	05	03	08
4.	36 to 40	04	12	16
5.	41 to 45	01	11	12
6.	46 to 50	02	10	12
7.	≥ 51 Yrs.	03	13	16
	Total	20	53	73
	Mean ± SD	38.20±8.6	43.75±9.2	

Chi-square (χ²) test:19.06, d.f:06 P:0.004 Significant

Table 3: Age comparison of Group I and II

Age	Group I	Group II	Independent t test
Mean ± Sd.	42.54 ± 9.43	42.23 ± 9.36	t:0.20, d.f:146, P:0.83 Non-Significant

Table 4: Comparison of burden of primary care givers of group I

Sr. No.	First Interview	Frequency (%)
1	No burden	00 (0.0%)
2	Little or No	03 (4.0%)
3	Mild to Moderate	31 (41.3%)
4	Moderate to Sever	41 (54.7%)
5	Sever	00 (0.0%)
	Total	75

Sr. No.	Second (6th month) interview	Frequency (%)
1	No burden	00 (0.0%)
2	Little or No	00 (0.0%)
3	Mild to Moderate	06 (8.0%)
4	Moderate to Sever	43 (57.3%)
5	Sever	26 (34.7%)
Total		75

Table 5: Changes in burden of Primary care givers of group I

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Mild to Moderate	Moderate to Sever	Sever	
Little or No	02 (66.66%)	01(33.33%)	00 (0.00%)	03
Mild to Moderate	04 (12.90%)	23 (74.19%)	04 (12.90%)	31
Moderate to Sever	00 (0.00%)	19 (46.34%)	22 (53.65%)	41
Total	06	43	26	75

Table 6: Comparison of burden of primary care givers of group II

Sr. No.	First Interview	Frequency (%)
1	No burden	02 (02.7%)
2	Little or No	19 (26.0%)
3	Mild to Moderate	45 (61.6%)
4	Moderate to Sever	07 (09.6%)
5	Sever	00 (0.00%)
Total		73 (100.0%)

Sr. No.	Second (6th month) interview	Frequency (%)
1	No burden	00 (0.00%)
2	Little or No	11 (15.1%)
3	Mild to Moderate	36 (49.3%)
4	Moderate to Sever	26 (35.6%)
5	Sever	00 (0.00%)
Total		73 (100.0%)

Table 7: Changes in burden of Primary care givers of group II

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Little or No	Mild to Moderate	Moderate to Sever	
No burden	00 (0.00%)	02 (100.0%)	0 (0.00%)	02
Little or No	06 (31.57%)	13 (68.42%)	00 (0.00%)	19
Mild to Moderate	05 (11.11%)	20 (44.44%)	20 (44.44%)	45
Moderate to Sever	00 (0.00%)	01 (14.28%)	06 (85.71%)	07

Table 8A: Changes in burden of Primary care givers of group I with respect to Female Gender

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Mild to Moderate	Moderate to Sever	Severe	
Little or No	02 (100.0%)	00 (0.00%)	00 (0.00%)	02
Mild to Moderate	01 (16.66%)	03 (50.0%)	02 (33.3%)	06
Moderate to Sever	00 (0.00%)	03 (25.0%)	09 (75.0%)	12
Total	03	06	11	20

Chi-square (χ^2) test:15.42, d.f:04, P:0.004 Significant

Table 8B: Changes in burden of Primary care givers of group I with respect to Male Gender

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Mild to Moderate	Moderate to Severe	Severe	
Little or No	00 (0.00%)	01 (100.0%)	00 (0.00%)	01
Mild to Moderate	03 (12.0%)	20 (80.0%)	02 (08.0%)	25
Moderate to Severe	00 (0.00%)	16 (55.17%)	13 (44.82%)	29
Total	03	37	15	55

Chi-square (χ^2) test:11.94, d.f:04, P:0.01 Significant

Table 9A: Changes in burden of Primary care givers of group II with respect to Female Gender

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Little or No	Mild to Moderate	Moderate to Severe	
Little or No	01 (20.0%)	04 (80.0%)	00 (0.00%)	05
Mild to Moderate	00 (0.00%)	04 (33.33%)	08 (66.66%)	12
Moderate to Severe	00 (0.00%)	01 (33.33%)	02 (66.66%)	03
Total	01	0	1	20

Chi-square (χ^2) test:8.14, d.f:04, P:0.08 Non-Significant

Table 9B: Changes in burden of Primary care givers of group II with respect to Male Gender

Burden T1 (Initial)	Burden T2 (after 6 months)			Total
	Little or No	Mild to Moderate	Moderate to Severe	
No Burden	00 (0.00%)	02	00 (0.00%)	02
Little or No	05 (35.71%)	09 (64.28%)	00 (0.00%)	14
Mild to Moderate	05 (15.15%)	16 (48.48%)	12 (36.36%)	33
Moderate to Severe	00 (0.00%)	00 (0.00%)	04 (100.0%)	04
Total	10	27	16	53

Chi-square (χ^2) test:18.69, d.f:06, P:0.005 Significant

Table 10 A: Changes in burden of Primary caregivers of Group I who were less than 40 years old

Burden T1(Initial)	Burden T2 (after 06 months)			Total
	Mild to Moderate	Moderate to Severe	Severe	
Little or No	02 (66.66%)	01 (33.33%)	00 (0.00%)	03
Mild to Moderate	02 (13.33%)	10 (66.66%)	03 (20.0%)	15
Moderate to Severe	00 (0.00%)	08 (53.33%)	07 (46.66%)	15
Total	04	19	10	33

Chi-square test (χ^2):12.52, d.f:04, P:0.01 Significant

Table 10 B: Changes in burden of Primary caregivers of Group I who were More than 41 years old

Burden T1 (Initial)	Burden T2 (after 06 months)			Total
	Mild to Moderate	Moderate to Severe	Severe	
Mild to Moderate	02 (12.5%)	13 (8.12%)	01 (6.25%)	16
Moderate to Severe	00 (0.00%)	11 (42.30%)	15 (57.69%)	26
Total	02	24	16	42

Chi-square test (χ^2):12.75, d.f:02, P:0.002 Significant

Table 11A: Changes in burden of Primary caregivers of Group II who were less than 40 years old

Burden T1 (Initial)	Burden T2 (after 06 months)			Total
	Little or No	Mild to Moderate	Moderate to Severe	
No Burden	00 (0.00%)	01 (100.0%)	00 (0.00%)	01
Little or No	02 (22.22%)	07 (77.77%)	00 (0.00%)	09
Mild to Moderate	02 (9.52%)	11 (52.38%)	08 (38.09%)	21
Moderate to Severe	00 (0.00%)	00 (0.00%)	02 (100.0%)	02
Total	04	19	10	33

Chi-square test (χ^2):10.09, d.f:06, P:0.1 Non-Significant

Table 11B: Changes in burden of Primary caregivers of Group II who were more than 41 years old

Burden T1(Initial)	Burden T2 (after 06 months)			Total
	Little or No	Mild to Moderate	Moderate to Severe	
No Burden	00 (0.00%)	01 (100.0%)	00 (0.00%)	01
Little or No	04 (40.0%)	06 (60.0%)	00 (0.00%)	10
Mild to Moderate	03 (12.5%)	09 (37.5%)	12 (50.0%)	24
Moderate to Severe	00 (0.00%)	01 (20.0%)	04 (80.0%)	05
Total	07	17	16	40

Chi-square test (χ^2):13.52, d.f:06, P:0.03 Significant

DISCUSSION

	Dr Tekale J et.al. (Present study)	Abbasi Ali et. al. ⁶ (Gloestan Univ. study)	Mashayekhi F et.al. ⁷ (Jiroft Univ. study)	Jafari H et.al. ⁸ (Kermanshah Uni, study)
Mean age ± Sd.	42.54 ± (9.43)	*****	42.11 ± 14.78	42 ±15
Gender	26.6% F, 73.3% M	68.6% F, 31.4% M	****	*****
Burden (severe) on care givers	34.7%	74.2%	72.5%	37.4%

SUMMARY

Total 148 primary care givers (75 group I and 73 group II) were interviewed twice; 27% and 73% were males and females respectively. Mean difference of age in between group I and group II found to be non significant

Group I	Burden @ First Interview		Burden @Second Interview	
	Mild to Mod.	Mod. To Severe	Mod. To Severe	Sever
	41.3%	54.7%	↑ 57.3%	↑ 34.7%
Group II	Mild to Mod.	Mod. To Severe	Mild to Mod.	Mod. To Severe
	61.6%	09.6%	↓ 49.3%	↑ 35.6%

None had severe burden

In group I; out of 41 cases of moderate to severe burden 53.65% (22) converted in to severe type of burden during 06 months of therapy; in groups II no such changes of burden were observed. 55% female; and 27.27% male primary caregivers of group 'I' had severe burden; after 6 months of treatment, the burden of majority females primary caregivers of this group changed in to severe. While no such observation has seen group II. Severe type of burden was seen more in the above 41 years old primary caregivers as compared to less than 40 years old in group I; while no such changes were observed in group II.

CONCLUSION

Present study gives following conclusions; Haemodialysis with pharmacotherapy increases the burden on primary caregivers of chronic renal failure patients; as compared to only pharmacotherapy. Females are more prone to get severe type of burden as compared to males and also their burden changes in to severe type

more. As compared to 'little or no' and 'mild to moderate' type burden; moderate to severe type of burden changes more in to severe type. Primary caregivers of above 41 years showed more severe type of burden as compared to less than 40 years old.

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