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Original Article

A Descriptive Study to Assess the Stressors, Level of Stress, and Coping Strategies of Patients Undergoing Hemodialysis

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Abstract

Background: Hemodialysis is a lifelong treatment that significantly and sometimes adversely affects patient's physical, mental, and social well-being. Chronic kidney disease is a worldwide public health problem and now recognized as a common condition that is associated with an increased risk of cardiovascular disease and chronic renal failure. The incidence rates of end-stage renal disease have increased steadily and internationally. The United States has the highest incidence rate of end-stage renal disease rate (Parsian, 2007).

Methods: The descriptive study was conducted at Madras Medical Mission Hospital dialysis unit Chennai. Sixty samples who fulfilled the sample selection criteria were selected using non-probability purposive sampling. The investigator used structure interview method to collect the data. Data were collected during the process of dialysis. The collected data were tabulated for analysis and analyzed using both descriptive and inferential statistics.

Results: Regarding the overall level of stressors, the findings revealed that 35 (58.33%) had moderate level of stressors and 25 (41.67%) had severe level of stressors. The findings revealed that 37 (61.67%) had moderate level of stress, 20 (33.33%) had severe level of stress, and only 3 (5%) had mild level of stress among patient undergoing hemodialysis.

Conclusion: The findings revealed that when stressors increases, stress also increases. When coping strategies increase, stressors decrease, indicated that when coping strategies increase, stress decreases.

Keywords: Chronic kidney disease, hemodialysis, stress and coping strategies.

Introduction

The world's population is 7.49 billion in 2017, among which 1.34 billion live in India. It comprises 27.7% childhood, 17.99% of adolescence, 40.9% of early adulthood, 7.3% late adulthood, and 6.09% of old age (WHO, 2017).[1]

In Tamil Nadu, 67.86 million people live, total male 69.6 crore and female 65.2 crore, and in Chennai, 4.9 million people lives. Adults are one among the important groups in the population.[2,3]

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Chronic kidney disease (CKD)

CKD is a global threat to health in general and in the developing countries in particular, because therapy is expensive and lifelong. In India, 90% of patients cannot afford the cost.[5-7]

Hemodialysis is a lifelong treatment that significantly and sometimes adversely affects patient's physical, mental, and social well-being.[4]

Stressors

Any event or situation causes stress to perform undergoing hemodialysis.[18]

Stress

A stimulus is perceived as harmful, to physical psychological and social well-being of patients undergoing hemodialysis.[8-10]

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Coping strategies
It refers to actions and steps taken by the patients undergoing hemodialysis to deal with the stressful situation.[11-13]

Patient with hemodialysis
A person clinically diagnosed to have renal disease and undergoing hemodialysis for a period of 1–3 years.[18]

Objectives of the study
The objectives of the study were as follows:
1. To assess the stressors, level of stress, and coping strategies of patients undergoing hemodialysis
2. To correlate the stressors, level of stress, and coping strategies of patients undergoing hemodialysis
3. To associate the stressors, level of stress, and coping strategies of patients undergoing hemodialysis with their selected sociodemographic variables.

Materials And Methods
Research approach
The research approach used in the study was quantitative approach.

Research design
Descriptive research design was used.

Sample size
Sample size comprised 60 patients undergoing hemodialysis.

Sample technique
Non-probability purposive sampling technique was used in this study.

Data collection tool
Section A – Demographic variables included age, gender, educational level, marital status, religion, occupation, frequency of illness, duration of illness, and distance from hospital.

Part 2 – Hemodialysis stressors scale to assess the level of stressors among patients undergoing hemodialysis**.** It consists of list of 25 stressors under three aspects, namely, physical, psychological, and socioeconomic factors. A scoring key was prepared for each correct answer the scores "1" given and for wrong answer the score "0" given. The total score was 30. The questionnaire was given to the sample.

Section A – Demographic data: It consists of demographic data which include age, type of deliver, educational status, occupation, type of family, dietary pattern, and sources of information.

Section B – Self-administered method using structured knowledge questionnaire. Structured questionnaire is used to assess knowledge regarding hemodialysis. A scoring key was prepared for each correct the scores: Never – 0, rarely – 1, occasionally – 2, moderately – 3, and great amount – 4. The total score was 30. The questionnaire was given to the sample.

Section C: Checklist to assess the level of stress which consisted of 10 statements of stressful condition, total score was 30**.** The higher score was considered as more stress.

Section D: Coping strategy assessment scale to assess the level of coping strategies of hemodialysis patients. The tool consisted of possible coping strategies as statement under various types such as problem oriented, emotional focused, seeking support, avoidance oriented, and isolated thoughts. The responses were categorized as yes and no. The "yes" response was given a score of "1" and no response was given a score of 0. The total score was 33. The score was converted into percentage and interpreted.

Ethical considerations
The approval was obtained from Institutional Research Ethical and Committee. Formal permission was obtained from the Principal, MMM College of Nursing, and also permission was obtained from the Managing Director of the hospital. Informed written consent was taken from the hemodialysis patients to process the study. Assurance was given to the dialysis patients that confidentiality, privacy would be maintained and no harm will be inflicted on them and they can drop out of the study any time if they feel so.

Results
Following were the major findings of the research study:
1. Finding related to demographic data of the samples
2. Findings related to stressors, level of stress, and coping strategies of patient undergoing hemodialysis
3. Finding related to frequency and percentage distribution of level of coping strategies among patients undergoing hemodialysis
4. Findings related to correlation between the stressors, stress, and coping strategies of patients undergoing hemodialysis
5. Findings related to shows association of level of stress among patients undergoing hemodialysis with selected demographic variables
6. Findings related to shows association of level of stressors among patients undergoing hemodialysis with their selected demographic variables
7. Findings related to association of the level of coping strategies among patients undergoing hemodialysis with their selected demographic variables.

Finding related to demographic data of the samples
With regard to age, 35 (53.33%) were in the age group of 41–50 years. With respect to sex, 39 (65%) of them were male and 21 (35%) were female. With regard to educational status, 9 (15%) of them had professional honor education, 14 (23.33%) of them had PG and UG education, 13 (21.6%) of them had diploma, 8 (13.3%) of them had higher secondary school, 12 (20%) of them had middle secondary school, 4 (6.67%) of them had primary school, and none of them were illiterate. With regard to marital status, 45 (75%) of them were

married, 8 (13.33%) of them were unmarried, 3 (5%) of them were separated, and 4 (6.67%) of them were widow.[20]

With regard to occupation, 17 (28.33) of them were professional, 9 (15%) of them were semi-professional, and 34 (56.6%) of them were unemployed. With regard to income, 34 (56.67%) of them had less income (4172–7877). With regard to duration of illness, 60 (100%) of the samples had 2 years of dialysis, respectively. With regard to frequency of dialysis, all of the samples 60 (100%) had dialysis 2 times per week, 36 (60%) of them were at long distance from hospital, and 24 (40%) of them were residing nearby to the hospital[20] [Table 1].

Findings related to stressors, level of stress, and coping strategies of patient undergoing hemodialysis

Regarding the overall level of stressors, the findings revealed that 35 (58.33%) had moderate level of stressors and 25 (41.67%) had severe level of stressors[20] [Table 2].

The findings revealed that 37 (61.67%) had moderate level of stress, 20 (33.33%) had severe level of stress, and only 3 (5%) had mild level of stress among patient undergoing hemodialysis[19] [Table 3].

- Finding related to comparison of pre- and post-test knowledge of the samples
- Finding related to association of knowledge with selected demographic data of the samples.

Finding related to frequency and percentage distribution of level of coping strategies among patients undergoing hemodialysis.

Regarding the overall level of coping strategies used, the findings revealed that 28 (38.33%) had used good level of coping strategies, 26 (43.33%) had used poor coping strategy, and 11 (18.33%) had used average coping strategy[19] [Table 4].

Findings related to correlation between the stressors, stress, and coping strategies of patients undergoing hemodialysis

The findings also revealed that the mean score of stress was 20.83 ± 4.15, the mean score of coping strategies 18.78 ± 7.68. The Karl Pearson's correlation value of $r = -0.613$ showed a negative correlation and it was found to be statistically significant at $P < 0.01$ level. This clearly indicated that when coping strategies increase, stress decreases [Table 5].[19]

Findings related to shows association of the level of stressors among patients undergoing hemodialysis with their selected demographic variables

The findings revealed that there was statistically significant association which was found between the level of stressors and the demographic variable the marital status ($\chi^2 = 8.054$ at $P < 0.034$) and the other demographic variables had not shown statistically significant association with the level of stressors among patient undergoing hemodialysis. The findings revealed that married people had moderate and severe level of stressors[18] [Table 6].

Table 1: Frequency and percentage distribution of demographic variables of patients undergoing hemodialysis ($n=60$)

Demographic variables	No	%
Age		
31–40	25	41.67
41–50	35	58.33
51–60	0	0.00
Gender		
Male	39	65.00
Female	21	35.00
Religion		
Hindu	8	13.33
Christian	31	51.67
Muslim	9	15.00
Others	12	20.00
Education status		
Professional honor	9	15.00
PG and UG	14	23.33
Diploma	13	21.67
Higher secondary school	8	13.33
Middle secondary school	12	20.00
Primary secondary school	4	6.67
Illiterate	0	0.00
Marital status		
Married	50	83.33
Unmarried	6	10.0
Separated/divorced	3	5.00
Widow/widower	1	1.67
Occupation		
Profession	17	28.33
Semi-profession	9	15.00
Skilled worker	0	0.00
Semi-skilled worker	0	0.00
Unskilled worker	0	0.00
Unemployed	34	56.67
Income		
<1589	0	0.00
1590–4726	0	0.00
4172–7877	34	56.67
7878–15,753	26	43.33
More than 15,753	0	0.00
Duration of illness		
1–2 years	60	100.00
2–3 years	0	0.00
3–4 years	0	0.00
4 years	0	0.00
Frequency of dialysis		
2 times per week	60	100.00
3 times per week	0	0.00
Distance from home to hospital		
Nearby house (5 km)	24	40.00
Long distance (above 5 km)	36	60.00

Table 2: Frequency and percentage distribution of level of stressors among patients undergoing hemodialysis

Variables	Mild		Moderate		Severe	
	No	%	No	%	No	%
Physical	5	8.33	47	78.33	8	13.34
Psychological	1	1.67	26	43.33	33	55.0
Social	0	0	13	21.67	47	78.33
Overall	0	0	35	58.33	25	41.67

Findings related to show the association of the level of stress among patients undergoing hemodialysis with selected demographic variables Table 7.

The findings revealed that patients in the age group of 41–51 years had moderate level of stress.

Findings related to the association of the level of coping strategies among patients undergoing hemodialysis with their selected demographic variables[17] [Table 8]

The findings revealed that the patient residing in long distance had used poor coping strategies.

Discussion

The result of the study was description of demographic variables.

The first objective of the study was to assess the level of stressors, stress, and coping strategies among patient undergoing hemodialysis.

Regarding the overall level of stressors, the findings revealed that 35 (58.33%) had moderate level of stressors and 25 (41.67%) had severe level of stressors.[17]

The findings also revealed that 37 (61.67%) had moderate level of stress, 20 (33.33%) had severe level of stress, and only 3 (5%) had mild level of stress among patient undergoing hemodialysis.[17]

Regarding the level of coping strategies used, the findings revealed that 28 (38.33%) had used good level of coping strategies, 26 (43.33%) had used poor coping strategy, and 11 (18.33%) had used average coping strategy[17] [Table 1].

The findings revealed that the mean score of stressors was 72.65 ± 8.49, the mean score of stress was 20.83 ± 4.15, and the mean score of coping strategies was 18.78 ± 7.68.

Table 3: Frequency and percentage distribution of the level of stress among patient undergoing hemodialysis ($n=60$)

Level of stress	Frequency	Percentage
Mild	3	5
Moderate	37	61.67
Severe	20	33.33

Table 4: Frequency and percentage distribution of the level of coping strategies among patients undergoing hemodialysis

Variables	Poor		Average		Good	
	No	%	No.	%	No	%
Problem oriented	22	36.67	23	38.33	15	25.0
Emotional focused	22	36.67	23	38.33	15	25.0
Seeking support	23	38.33	25	41.67	12	20.0
Avoidance oriented	19	31.67	30	50.0	11	18.33
Isolated thoughts	7	11.67	27	45.0	26	43.33
Overall	26	43.33	11	18.33	28	38.33

Table 5: Correlation between the stressors, stress, and coping strategies of patients undergoing hemodialysis ($n=60$)

Variables	Mean	S.D	Correlation coefficient r=value
Stressors	72.65	8.49	r=0.710
Stress	20.83	4.15	P=0.000, S**
Stressors	72.65	8.49	r=–0.490
Coping strategies	18.78	7.68	P=0.000, S**
Stress	20.83	4.15	r=–0.613
Coping strategies	18.78	7.68	P=0.000, S**

**P<0.01, S – Significant

Table 6: Association of the level of stressors among patients undergoing hemodialysis with their selected demographic variables ($n=60$)

Demographic variables	Moderate		Severe		Chi-square value
	No.	%	No.	%	
Age					χ^2=0.566
31–40	16	26.7	9	15.0	d.f=1
41–50	19	31.7	16	26.7	P=0.452
51–60	-	-	-	-	N.S
Gender					χ^2=2.279
Male	20	33.3	19	31.7	d.f=1
Female	15	25.0	6	10.0	P=0.131
					N.S
Religion					χ^2=5.401
Hindu	2	3.3	6	10.0	d.f=3
Christian	18	30.0	13	21.7	P=0.145
Muslim	7	11.7	2	3.3	N.S
Others	8	13.3	4	6.7	
Education status					χ^2=4.435
Professional honor	3	5.0	6	10.0	d.f=5
PG and UG	8	13.3	6	10.0	P=0.489
Diploma	8	13.3	5	8.3	N.S
Higher secondary school	4	6.7	4	6.7	
Middle secondary school	9	15.0	3	5.0	
Primary secondary school	3	5.0	1	1.7	
Illiterate	-	-	-	-	
Marital status					χ^2=8.054
Married	26	43.3	24	40.0	d.f=3
Unmarried	6	10.0	0	0	P=0.034
Separated/divorced	3	5.0	0	0	S*
Widow/widower	0	0	1	1.7	
Occupation					χ^2=0.397
Profession	11	18.3	6	10.0	d.f=2
Semi-profession	5	8.3	4	6.7	P=0.820
Skilled worker	-	-	-	-	N.S
Semi-skilled worker	-	-	-	-	
Unskilled worker	-	-	-	-	
Unemployed	19	31.7	15	25.0	
Income					χ^2=0.194
<1589	-	-	-	-	d.f=1
1590–4726	-	-	-	-	P=0.660
4172–7877	19	31.7	15	25.0	N.S
7878–15,753	16	26.7	10	16.7	
More than 15,753	-	-	-	-	
Duration of illness					-
1–2 years	35	58.3	25	41.7	
2–3 years	-	-	-	-	
3–4 years	-	-	-	-	
4 years	-	-	-	-	
Frequency of illness					
2 times per week	35	58.3	25	41.7	
3 times per week	-	-	-	-	
Distance from home to hospital					χ^2=0.286
Nearby house	15	25.0	9	15.0	d.f=1
Long distance	20	33.3	16	26.7	P=0.593
					N.S

N.S – Not significant

Table 7: Association of the level of stress among patients undergoing hemodialysis with their selected demographic variables (n=60)

Demographic variables	Mild		Moderate		Severe		Chi-square value
	No.	%	No.	%	No.	%	
Age							χ^2=6.069
31–40	3	5.0	12	20.0	10	16.7	d.f=2
41–50	0	0	26	41.7	10	16.7	P=0.048
51–60	-	-	-	-	-	-	S*
Gender							χ^2=1.382
Male	2	3.3	22	36.7	15	25.0	d.f=2
Female	1	1.7	15	25.0	5	8.3	P=0.501
							N.S
Religion							χ^2=9.105
Hindu	1	1.7	2	3.3	5	8.3	d.f=6
Christian	0	0	21	35.0	10	16.7	P=0.169
Muslim	1	1.7	7	11.7	1	1.7	N.S
Others	1	1.7	7	11.7	4	6.7	
Education status							χ^2=9.447
Professional honor	1	1.7	3	5.0	5	8.3	d.f=10
PG and UG	0	0	9	15.0	5	8.3	P=0.490
Diploma	0	0	9	15.0	4	6.7	N.S
Higher secondary school	0	0	6	10.0	2	3.3	
Middle secondary school	2	3.3	7	11.7	3	5.0	
Primary secondary school	0	0	3	5.0	1	1.7	
Illiterate	-	-	-	-			
Marital status							χ^2=8.282
Married	3	5.0	28	46.7	19	31.7	d.f=6
Unmarried	0	0	6	10.0	0	0	P=0.218
Separated/ divorced	0	0	3	5.0	0	0	N.S
Widow/widower	0	0	0	0	1	1.7	
Occupation							χ^2=4.000
Profession	0	0	13	21.7	4	6.7	d.f=4
Semi-profession	0	0	5	8.3	4	6.7	P=0.406
Skilled worker	-	-	-	-	-	-	N.S
Semi-skilled worker	-	-	-	-	-	-	
Unskilled worker	-	-	-	-	-	-	
Unemployed	3	5.0	19	31.7	12	20.0	
Income							χ^2=1.482
<1589	-	-	-	-			d.f=2
1590–4726	-	-	-	-			P=0.477
4172–7877	1	1.7	23	38.3	10	16.7	N.S
7878–15,753	2	3.3	14	23.3	10	16.7	
More than 15,753	-	-	-	-			
Duration of illness							-
1–2 years	3	5.0	37	61.7	20	33.3	
2–3 years	-	-	-	-			
3–4 years	-	-	-	-			
4 years	-	-	-	-			
Frequency of illness							
2 times per week	3	5.0	37	61.7	20	33.3	
3 times per week	-	-	-	-			
Distance from home to hospital							χ^2=3.084
Nearby house	1	1.7	18	30.0	5	8.3	d.f=2
Long distance	2	3.3	19	31.7	15	25.0	P=0.214
							N.S

N.S: Not significant

The second objective of the study was to correlate between the level of stressor, stress, and coping among patient undergoing hemodialysis**.**

The findings revealed that the mean score of stressors was 72.65 ± 8.49, the mean score of stress was 20.83 ± 4.15. The Karl Pearson's correlation value was r = 0.710 which showed a positive correlation and it was found to be statistically significant at P < 0.01 level. This clearly indicates that when stressors increase, stress also increases.[19]

The findings also revealed that the mean score of stressors was 72.65 ± 8.49, the mean score of coping strategies 18.78 ± 7.68. The Karl Pearson's correlation value of r = 0.490 showed a negative correlation and it was found to be statistically significant at P < 0.01 level. This clearly indicated that when coping strategies increase, stressors decrease.[19]

The findings also revealed that the mean score of stress was 20.83 ± 4.15, the mean score of coping strategies 18.78 ± 7.68. The Karl Pearson's correlation value of r = –0.613 showed a negative correlation and it was found to be statistically significant at P < 0.01 level. This clearly indicated that when coping strategies increase, stress decreases[19] [Table 2].

Hence, the hypothesis H_1 stated earlier that there is a significant relationship among the stressors, level of stress, and coping strategies of the patients undergoing hemodialysis which was accepted.[14]

The third objective of the study was to associate the stressors, level of stress, and coping strategies of patients undergoing hemodialysis with their selected sociodemographic variables.

The findings revealed that there was statistically significant association which was found between the level of stressors and the demographic variable the marital status (χ^2 = 8.054 at P < 0.034) and the other demographic variables had not shown statistically significant association with the level of stressors among patient undergoing hemodialysis.[14]

The findings revealed that there was statistically significant association which was found between the level of stress and the demographic variable age (χ^2 = 6.069 at P < 0.0048) and the other demographic variables had not shown statistically significant association with the level of stress among patient undergoing hemodialysis.[14,15]

The findings revealed that there was a statistically significant association which was found between the level of coping strategies and the demographic variable the distance from home to hospital (χ^2 = 8.259 at P = 0.016) P < 0.05 and the other demographic variables had not shown statistically significant association with the level of coping strategies among patients undergoing hemodialysis [Table 3].

Hence, the hypothesis H_2 stated earlier that there is a significant association of stressors, level of stress, and coping strategies were accepted age, marital status, and distance from home to hospital and not accepted the other demographic variables.[16]

Table 8: Association of the level of coping strategies among patients undergoing hemodialysis with their selected demographic variables (n=60)

Demographic variables	Poor		Average		Good		Chi-square value
	No.	%	No.	%	No.	%	
Age							χ^2=1.301
31–40	11	18.3	3	5.0	11	18.3	d.f=2
41–50	15	26.0	8	13.3	12	20.0	P=0.522
51–60	-	-	-	-	-	-	N.S
Gender	16	26.7	8	13.3	15	25.0	χ^2=0.426
Male	10	16.7	3	5.0	8	13.3	d.f=2
Female							P=0.808
							N.S
Religion							χ^2=6.607
Hindu	6	10.0	0	0	2	3.3	d.f=6
Christian	12	20.0	7	11.7	12	20.0	P=0.359
Muslim	3	5.0	3	5.0	3	5.0	N.S
Others	5	8.3	1	1.7	6	10.0	
Education status							χ^2=10.604
Professional honor	7	11.7	0	0	2	3.3	d.f=10
PG and UG	6	10.0	3	5.0	5	8.3	P=0.389
Diploma	4	6.7	3	5.0	6	10.0	N.S
Higher secondary school	2	3.3	1	1.7	5	8.3	
Middle secondary school	5	8.3	4	6.7	3	5.0	
Primary secondary school	2	3.3	0	0	2	3.3	
Illiterate	-	-	-	-			
Marital status							χ^2=8.675
Married	24	40.0	7	11.7	19	31.7	d.f=6
Unmarried	1	1.7	3	5.0	2	3.3	P=0.193
Separated/ divorced	0	0	1	1.7	2	3.3	N.S
Widow/widower	1	1.7	0	0	0	0	
Occupation							χ^2=2.394
Profession	8	13.3	3	5.0	6	10.0	d.f=4
Semi-profession	4	6.7	3	5.0	2	3.3	P=0.664
Skilled worker	-	-	-	-	-	-	N.S
Semi-skilled worker	-	-	-	-	-	-	
Unskilled worker	-	-	-	-	-	-	
Unemployed	14	23.3	5	8.3	15	25.0	
Income							χ^2=2.592
<1589	-	-	-	-			d.f=2
1590–4726	-	-	-	-			P=0.274
4172–7877	13	21.7	5	8.3	16	26.7	N.S
7878–15,753	13	21.7	6	10.0	7	11.7	
More than 15,753	-	-	-	-			
Duration of illness							-
1–2 years	26	43.3	11	18.3	23	38.3	
2–3 years	-	-	-	-			
3–4 years	-	-	-	-			
4 years	-	-	-	-			
Frequency of illness							
2 times per week	26	43.3	11	18.3	23	38.3	
3 times per week	-	-	-	-			
Distance from home to hospital							χ^2=8.259
							d.f=2
Nearby house	5	8.3	6	10.0	13	21.7	P=0.016
Long distance	21	35.0	5	8.3	10	16.7	S*

*P<0.05, S: Significant, N.S: Not significant

Conclusion

The study concluded that when stressors increases, stress increases which, in turn, increases level of coping, and when coping increases, the level of stress is reduced. The results revealed that were positive and support seeking method association with coping strategies. Patients used problem-oriented strategy to ease their stressors coping with analysis. Results indicated that the psychosocial and physiological stressors have an equal impact on the patient.

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Conflicts of Interest

All authors declare they have no conflicts of interest.

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