Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i18.3512

STRESSORS AND COPING STRATEGIES AMONG HEMODIALYSIS PATIENTS: A CROSS SECTIONAL SURVEY FROM TERTIARY CARE HOSPITALS, PESHAWAR

Iffat Aisha[1], Sardar Ali[2], Dildar Muhammad[3], Muhammad Nadim[4], Sahib Jahan[5], Amir Sultan[6], Javed Iqbal[7], Akhtar Bano[8]

[1]Nursing Instructor-Hayatabad Medical Complex Peshawar
[2]Assistant Professor-Institute of nursing sciences-Khyber, Medical University Peshawar
[3]Associate Professor-Institute of nursing sciences-Khyber Medical University Peshawar
[4]Nursing department, shaukat khanum hospital, Pakistan
[5]Principal-Shahid College of Nursing Shabqadar Charsadda
[6]Assistant professor/ Principal-Tasleem college of nursing and health sciences, Swat, KPK
[7]Nursing Management-Department Communicable Disease center-HMC Doha Qatar.
[8]Principal-Post Graduate College of Nursing Peshawar.

***Correspondence Author: -** Javed Iqbal
Nursing management communicable disease center, Hamad medical cooperation, Doha Qatar
&
PhD Student in University of Malaya, Email: jiqbal3@hamad.qa (0000-0003-2627-685X)

Abstract

Background: Kidney diseases are prevailing significantly around the world in terms of its morbidity and mortality rates. End stage renal diseases are considered as one of the most occurring of these kidney diseases which constitute approximately 10 to 15% of all the global burden of diseases. Approximately 88% of all the chronic renal failure or ESRD patients receive hemodialysis management as one of the prime and essential therapy to reinstate their life activities. The statistics report the trend of ESRD and hemodialysis is almost the same in more advanced as well as the developing nations of the world. Certain types of stressors affect the hemodialysis patients during their course of treatment which needs to be addressed with different types of coping strategies among the patients.

Aim: The main purpose of the study was to assess the different types of stressors and to determine the coping strategies among patients undergoing hemodialysis procedure.

Methods: A descriptive cross sectional study was carried out to assess the stressors and coping mechanism among hemodialysis survivors. A sample 383 patients were taken through simple random sampling from the three different types of public sector hospitals, Peshawar. Two types of adopted and validated questionnaire (HSS & JCS) were used to collect the required data. Data was analyzed by SPSS Version-22 for its proper presentations. The analyzed data was portrayed in the form of percentages, frequencies, mean and standard deviation which was further represented in the form of graphs and tables.

Results: The findings of the study showed that majority (69%) of the hemodialysis survivors were male while around (31%) of them were female. Age analysis reported that majority (66%) of all the participants had age more than 50 years of their ages. Physiological stressors was found a big issue

among the participants with a mean score 3.16285+0.534 on a scale of 4 category likert scale with an overall percentage of 79.05%. However Psychological stressors reflected a very big picture in their nature with a mean value of 3.3824+0.6167 with an accumulative percentage of 84.56%. Spirituality and religious coping strategies a mean score of (3.740+0.452) was ranked the highest coping strategies while sleep was found the lowest of coping strategy among patient with a mean score of 1.270+0.0.546.

Conclusion: The findings of the study showed that different types of stressors specifically physical and psychological stressor affect the hemodialysis patients drastically which need to be taken in consideration for their better management. Patients must be treated to develop good coping mechanism skills to overcome their stressors for having betterment in their quality life.

Keywords: Stressors, Coping Strategies, Hemodialysis, Patients, End Stage Renal Disease Care

Introduction

End-stage renal disease is a major global health concern that accounts for 10% to 15% of all diseases worldwide, with a notable rise in Asian nations like Pakistan and India. Patients with end-stage renal illness can only be kept alive by hemodialysis, the most popular kind of renal replacement therapy. Statistics from the United States of America in 2016 showed and reported that around 0.68 million were patients living with the End Stage Renal Disease (ESRD) only. Further this statistics calculated that 87.9% of them were on hemodialysis management to restore their physiological life activities. This magnitude reflects that ESRD is one of the prevailing concerns not only in the developing countries but it also have affected the most advanced nations of the world where all the health facilities are available.[6-9] Hemodialysis is the only management modality that is used frequently around the world to bring some ease and quality of such patients diagnosed with the chronic renal failure (CRF). However; due to the dependency on hemodialysis process, patients experience to suffer with a wide range of physiological (muscles cramps, itching and other physical ailments) and psycho-social problems (poor sleep quality, diet problems, and indecision about life sustainability) which also affect the feature and quality of life not only the physical but the psychological health of patients as well.[10-14]

Stressors such as fatigue, itching, loss of body function, restriction on food and fluids, uncertainty about the future, sleep disturbance, improper rest, restriction on physical insertion or lack of activity, decreased social life, unemployment, length of dialysis treatment, and cost factors are some of the factors that contribute to these physiological and psychological problems among hemodialysis patients.[15]

Hemodialysis patients employ a variety of coping mechanisms to manage their chronic illnesses. These include confronting the issue head-on, sidestepping it, adhering to prescribed treatment plans, letting go of negative feelings, thinking positively, reaching out to support networks, adopting a pessimistic outlook, and relying on oneself to feel better. Research indicates that patients' problem-solving and avoidance coping strategies are highly correlated with psycho-social stressors.[16] According to other research studies, patients use positive coping mechanisms as a coping strategy and psycho-social stresses are more common than physiological stressors. The most popular coping mechanisms include direct confrontation, optimism, evasion, compulsive behavior, support, emotional stability, self-reliance, and palliative care.[17,18, 19]

Management of the patients with hemodialysis procedure is one of the challenging experiences for the patients as well as for the health care professionals to overcome the miseries result during process of treatment.[20, 21] Special skills are required to manage the ailments arise from hemodialysis in terms of the stressors among the patients therefore updated knowledge is required by the physicians as well as the nurses and technician to bring some excellence in the quality life of such patients. Further the patients must have to be enabled to cope up with their problems and to carry on with their lives with having reduction in the severity of their physical as well as psychological ailments and sufferings.[22, 23, 24]

Materials and Methods

A cross sectional survey was conducted to identify the stressors and coping mechanism among hemodialysis patients. A sample of 383 patients was included in the study based on certain inclusion and exclusion criteria. A probability simple random sampling technique was used to take the sample from the three major public sector tertiary care hospital, Peshawar. Data was collected through adopted, valid and reliable questionnaires. Hemodialysis Stressors Scale (HSS) with a reliability of chronbach alpha 0.89 and Jalowiec Coping Scale (JCS) with a consistency of 0.88 were used for the purpose to collect the required data. All the ethical considerations were taken care. Proper approval of the study was granted from ethical review committee, concerned departments and advanced board of studies of Khyber Medical University.

Version 22.0 of SPSS software was used to analyze the data. For demographic characteristics such age groups, gender, length of treatment, stressors, and coping mechanisms, percentages and frequencies were computed. The link or association between stresses (the dependent variable), coping mechanisms, and the usefulness of coping mechanisms (the independent variables) was examined using an ANOVA test. The T test was also used to look for relationships between demographics and the scores for coping mechanisms and stresses. In accordance, additional statistical analyses using mean and standard deviations were applied. Following data analysis, the conclusions and findings were dispersed and plotted in the form of percentages and frequencies on graphs, charts, and tables to aid in understanding.

Results

To summarize the demographic variables *Table-4.1* sum up that the total sample (n=383) was having around 253 males and 120 females patients that constitute 68.67% and 31.33% of the entire patient population. Similarly age analysis and interpretation reflects that 24 (6.27%) of the participants had age below than 30 years of their age. 30 (7.83%) of the patients had age above than 30 and below than 40 years of their ages. 77(20.10%) had age below than 50 years and more than 40 years of their age. 123 (32.11%) of the participants had age ranges from 51 to 60 years of ages who went through hemodialysis. Majority of 129 (33.68%) had age more than 60 years of their ages for having hemodialysis procedure. Analysis of the time duration showed that majority 153 (39.95%) of the patients had duration of therapy less tha 3 years duration. 126 (32.90%) had time treatment for 3 to 5 years, 58 (15.14%) had therapeutic regime for 6 to 10 years of time while 46 (12.01%) had more than 10- years of time for their treatment and management. (See table 1).

Table1: Demographic variables

Demographic Variables	Category	Frequency (n=383)	Percentage
Gender	Male	263	68.67%
	Female	120	31.33%
Age	18-30 Years	24	06.27%
	31-40 Years	30	07.83%
	41-50 Years	77	20.10%
	51-60 Years	123	32.11%
	61 Years and Above	129	33.68%
Treatment Time Duration	Less than 3 Years	153	39.95%
	3-5 Years	126	32.90%
	6-10 Years	58	15.14%
	More than 10-Years	46	12.01%

Table-1 demographic data of the participants

4.2 Physiological Stressors Statistics

The analysis reflected a comprehensive analysis for individual stressors in terms of physical as well as psychological one in their nature. Every individual item has been calculated with its mean values, frequency, percentage and grading as mention earlier with parameters of ("Very Big-More than 80%", "Big-60 to 79.9%"," Moderate 40 to 59.9%" and "Little-Less than 39.9%"). Overall mean and standard deviation of *3.16285* +0.534 shows with an overall percentage of 79.05% that reflect that these stressors are big in their nature among patients undergoing dialysis according to the stated criteria. (See table 2)

Table-2: Physiological stressors

Physiological Stressors	N	Mean	S. Deviation	Percentage	Scoring Value
1. Arterial& venous stick	383	2.54	.581	63.50%	Big
2. Nausea & vomiting		2.34	.621	58.50%	Moderate
3. Muscles cramps/stenosis		3.63	.554	90.75%	Very Big
4. Itching		2.74	.689	68.5%	Big
5. Length of treatment		3.89	.362	97.25%	Very Big
6. Stiffness of joint		3.10	.635	77.5%	Big
7. Feeling tired		3.90	.296	97.5%	Very Big
Total Mean Score		*3.16285*	*0.534*	*79.05%*	*Big*

Psychological Stressors Statistics

Analysis of psychological stressors reported a comparatively worst condition than the physiological one. Taken as whole the mean and standard deviation score of psychological stressors was 3.3824+0.6167 with an accumulative percentage of 84.56% which shows a very big nature of the problem according to the constructed parameters. The statistics reports that both the physical and psychological stressors affect the hemodialysis survivors to the maximum of their levels however they have been found more affect by the psychological stressors. Therefore while planning care and treating patients undergoing hemodialysis need to be taken in consideration for both types of stressors to be managed effectively. (See table 3).

Table 3: Psychological stressors

	Mean	S. Deviation	Percentage	Scoring Value
1. Loss of body functions	3.84	.422	96.00%	Very Big
2. Decrease in social life	3.87	.350	96.75%	
3. Limitation of food	3.78	.437	94.50%	
4. Limitation of fluid	3.72	.485	93.00%	
5. Interference with job	3.54	.876	88.50%	
6. Decrease in sexual derive	3.61	.849	90.25%	
7. Limitation in physical activity	3.76	.487	94.00%	
8. Sleep disturbance	3.32	.521	83.00%	
9. Change in family responsibilities	3.67	.544	91.75%	
10. Reversal in family role with spouse	3.41	.753	85.25%	
11. Reversal in family role with children	3.11	.666	77.75%	Big
12. Uncertainty about future	2.42	.996	60.50%	
13. Change in body appearance	3.71	.590	92.75%	Very Big
14. Limited in style of clothing	3.60	.578	90.00%	
15. Cost of treatment/or other cost factors	3.95	.245	98.75%	
16. Transportation to and from unit	3.78	.624	94.50%	
17. Limit on time and place for vacation	2.04	.849	51.00%	Moderate

18. Frequent hospital admission	3.81	.470	95.25%	Very Big
19. Dialysis machine / or equipment	3.86	.395	96.50%	
20. Dependency on nurse / or technician	3.49	.501	87.25%	
21. Dependency on physician	3.52	.516	88.00%	
22. Fear of being alone	2.73	.848	68.25%	Big
23. Feeling related to treatment (cold)	2.86	.623	71.50%	
24. Boredom	2.01	.870	50.25%	Moderate
25. Decreased ability to have children	3.15	.923	78.75%	Big
Total Mean Score	3.3824	0.6167	84.56%	

Stressors Association with Gender

Through independent t-test It was reported that gender had no significant association with the physical stressors with (p-value=0.555) however it was found that gender had a significant relation with the psychological association with (P-value=0.009). (See table 4).

Table 4: Stressors association with gender

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-Tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Physio_Scale Physiological	EVA	.348	.555	-.198	381	.843	-.039	.195	-.421	.344
	EVNA			-.190	193.743	.849	-.039	.202	-.437	.360
Psy_Scale Physiological	EVA	6.927	.009	1.905	381	.058	1.17063	.61452	-.03765	2.37891
	EVNA			1.736	173.958	.084	1.17063	.67451	-.16065	2.50192
Mean Stressor	EVA	3.102	.079	1.512	381	.131	.03538	.02340	-.01063	.08139
	EVNA			1.384	175.580	.168	.03538	.02556	-.01506	.08581

EVA=Equal Variance Assumed, EVNA=Equal Variance Not Assumed

Stressors Association to Age

Through ANOVA analysis of Age to the stressors by using ANOVA Test showed that age had a statistical significant association with (p-value=0.000) in regard to the mean scores of physical and psychological stressors. (See table 5).

Table 5: Stressors Association to Age

		Sum of Squares	df	Mean Square	F	Sig.
Physio_Scale Physiological Scale	Between Groups	342.929	40	8.573	3.631	.000
	Within Groups	807.458	342	2.361		
	Total	1150.386	382			
Psy_Scale Physiological Scale	Between Groups	4049.537	40	101.238	4.603	.000
	Within Groups	7521.220	342	21.992		
	Total	11570.757	382			
Total Stressors Total Stressors	Between Groups	6032.482	40	150.812	4.652	.000
	Within Groups	11087.163	342	32.419		
	Total	17119.645	382			

Stressors Correlation to Treatment Duration (ANOVA)

It was reflected that treatment duration among hemodialysis survivors had a statistically significant association with both types of stressors with a p-value of 0.002 for physiological and p-value of 0.000 for psychological stressors as evident. (See table 6).

Table 6: Stressors Correlation to Treatment Duration

		Sum of Squares	Df	Mean Square	F	Sig.
Physio_Scale Physiological scale	Between Groups	37.687	2	18.843	6.435	.002
	Within Groups	1112.700	380	2.928		
	Total	1150.386	382			
Psy_Scale Physiological Scale	Between Groups	987.218	2	493.609	17.723	.000
	Within Groups	10583.539	380	27.851		
	Total	11570.757	382			
Total Stressors Total Stressors	Between Groups	1386.605	2	693.302	16.745	.000
	Within Groups	15733.040	380	41.403		
	Total	17119.645	382			

Discussion

The spectrum of learning styles among the population examined showed that the majority of students from both undergraduate programs, 56 (31.6%), had kinesthetic learning styles. Read and write learning styles, on the other hand, were represented by 38 (21.5%), multi-modal (30 (16.9%), visual 27 (15.3%), and aural 26 (14.7%), in that order. According to a related study done on BDS students, 19.9% of them had a multi-modal learning style, whereas 30.1% had a kinesthetic learning style and 22.6% had a visual learning style.10 In a study of pre-medical students, the percentage of participants who could read and write was greatest (33.8%), followed by kinesthetic approaches (32.5%).[11] In a different study, the majority of medical students—46.2%—had multi-modal learning styles, followed by visual (24.1%) and auditory (17.5%), with 11.8% reporting kinesthetic learning styles.[12] Additionally, additional research on nursing students shows that 27.5% of them have a kinesthetic style, and a comparable percentage have an auditory style. In contrast, 13.7% and 11.8% of nursing students have read and write and visual styles, respectively, while 19.6% of nursing students have multi-modal styles. While the sample sizes of the reference studies were found to be smaller in comparison, all of these findings were found to be compatible with the study that was done.[13] In addition, the study's trends on learning styles revealed that the most preferred learning types were kinesthetic, followed by read and write multi modal, visual, and auditory. Research conducted on Chinese nursing students has revealed a similar pattern: the majority of nursing students had a kinesthetic learning style, which was followed by aural and visual learning styles.14 On the other hand, a Saudi Arabian survey found that the majority of staff nurses—roughly two thirds—had multimodal learning styles. [15] Research conducted in Scotland revealed that 76 (53%) of the nurses had a visual learning preference.[16] Additionally, a comparison of the chosen teaching methods among nursing students shows that 80 (42.2%) of them preferred the conventional teaching method, while 97 (54.8%) preferred to be thought of as a facilitator and advised to be a part of the modern modes of learning. Other studies have also acknowledged the value of the students-centered or modern approach.[17]

Analysis of the data also revealed that, when academic outcomes among nursing students with varying learning styles were compared, the group that adhered to visual and kinesthetic learning styles received the highest mean score (marks), followed by read and write, while aural learning styles were found to be the least successful. At $p = 0.023$, these differences were statistically significant. Comparing the Grade Point Average (GPA) to the mean percent of marks earned by the students revealed a similar trend: visual and kinesthetic learning methods were effective in accounting for substantial differences ($p=0.032$). In contrast, a study on dental students in Iran found

that the most common learning style was multi-modal, followed by aural and kinesthetic, and that there was a significant correlation between learning styles and academic achievement. However, the study also found that the preferred learning styles for improved academic performance were reading and writing.[18] The methodological differences were there among the given literature and current study findings however these differences may be further be based on the educational methodologies, leaning atmosphere, academic facilities and courses of studies. Some of the other literature and studies have shown the same level of association established among nursing students.[19, 20]

Conclusion: Students centered teaching approaches are appreciated by the students in nursing education. Therefore instructional strategies need to be planned according to the learning styles of the students. Learning styles play a vital role in the retention of the concepts as well students can perform better in their academic activities if teaching would be planned according to the preferred learning styles of the students. The current study findings concluded that Kinesthetic and Visual learning styles were found as the most common preferred learning styles as compared to the read and write styles among nursing students. Furthermore; it was found that there is significant association between academic performances and learning styles of the students therefore the instructional methods could be planned according to the students preferred styles of learning to have better outcome sin learning as well as in the academic performance of the students.

References

1. Sa'ed HZ, Daraghmeh DN, Mezyed DO, Khdeir RL, Sawafta MN, Ayaseh NA, Tabeeb GH, Sweileh WM, Awang R, Al-Jabi SW. Factors affecting quality of life in patients on Heamodialysis: a cross-sectional study from Palestine. BMC nephrology. 2016; 17(1):44.
2. Atkins RC. The epidemiology of chronic kidney disease. Kidney international. 2005: 1;67:S14-8.
3. de Abreu MM, Walker DR, Sesso RC, Ferraz MB. A cost evaluation of peritoneal dialysis and hemodialysis in the treatment of end-stage renal disease in Sao Paulo, Brazil. Peritoneal Dialysis International. 2013: 1;33(3):304-15.
4. Weening JJ. Advancing nephrology around the globe: an invitation to contribute. Journal of the American Society of Nephrology. 2004: 1;15(10):2761-2.
5. Goodkin DA, Mapes DL, Held PJ. The dialysis outcomes and practice patterns study (DOPPS): how can we improve the care of hemodialysis patients?. InSeminars in dialysis 2001:(Vol. 14, No. 3, pp. 157-159). Boston, MA, USA: Blackwell Science Inc.
6. Ali Jaffar Naqvi S. Nephrology services in Pakistan. Nephrology Dialysis Transplantation. 2000 Jun 1; 15(6):769-71.
7. Bukhary FE, Sayied NE, Abo-El-Magd MH, Saber EH. Psychological stress and coping strategies among chronic hemodialysis patients at El-minia University Hospital. AAMJ. 2013 Jul; 11(3):1-48.
8. Paraskevas KI, Bessias N, Koupidis SA, Tziviskou E, Mikhailidis DP, Oreopoulos DG. Incidence of end-stage renal disease in the elderly: a steadily rising global socioeconomic epidemic. International urology and nephrology. 2010:1;42(2):523-5.
9. Szczech LA, Harmon W, Hostetter TH, Klotman PE, Powe NR, Sedor JR, Smedberg P, Himmelfarb J. World Kidney Day 2009: problems and challenges in the emerging epidemic of kidney disease.
10. Parvan K, Ahangar R, Hosseini FA, Abdollahzadeh F, Ghojazadeh M, Jasemi M. Coping methods to stress among patients on hemodialysis and peritoneal dialysis. Saudi Journal of Kidney Diseases and Transplantation. 2015 Mar 1;26(2):255.
11. Tu HY, Shao JH, Wu FJ, Chen SH, Chuang YH. Stressors and coping strategies of 20–45-year-old hemodialysis patients. Collegian. 2014 Sep 1; 21(3):185-92.
12. Weisbord SD, Fried LF, Arnold RM, Fine MJ, Levenson DJ, Peterson RA, Switzer GE. Prevalence, severity, and importance of physical and emotional symptoms in chronic

hemodialysis patients. Journal of the American Society of Nephrology. 2005 Aug 1;16(8):2487-94.
13. Zamanzadeh V, Heidarzadeh M, Oshvandi KH, Lakdizaji S. Relationship between quality of life and social support in hemodialysis patients in Imam Khomeini and Sina educational hospitals of Tabriz University of medical sciences.
14. Curtin RB, Bultman DC, Thomas-Hawkins C, Walters BA, Schatell D. Hemodialysis patients' symptom experiences: effects on physical and mental functioning. Nephrology Nursing Journal. 2002 Dec 1;29(6):562-74.
15. Anand S, Khanam MA, Finkelstein FO. Global perspective of kidney disease. In Nutrition in kidney disease 2014 (pp. 11-23). Humana Press, Totowa, NJ.
16. Lii YC, Tsay SL, Wang TJ. Group intervention to improve quality of life in Heamodialysis patients. Journal of clinical nursing. 2007 Nov 1; 16(11c):268-75.
17. Shahrokhi Z, Rayyani M, Sabzevari S, Haghdoost AA. Stressors and Coping strategies of dialysis patients. J Crit Care Nurs. 2014; 6(4):184-93.
18. Tahseen D, Issa N. Stressors and Coping Strategies amongst Hemodialysis Patients in North of West Bank. 2015
19. Yee A, Seow YY, Tan SH, Goh C, Qu L, Lee G. What do renal health-care professionals in Singapore think of advance care planning for patients with end-stage renal disease?. Nephrology. 2011 Feb;16(2):232-8.
20. Polaschek N. Negotiated care: a model for nursing work in the renal setting. Journal of advanced nursing. 2003 May;42(4):355-63.
21. Polkinghorne KR, Seneviratne M, Kerr PG. Effect of a vascular access nurse coordinator to reduce central venous catheter use in incident hemodialysis patients: a quality improvement report. American Journal of Kidney Diseases. 2009 Jan 1;53(1):99-106.
22. Doss S, DePascal P, Hadley K. Patient-nurse partnerships. Nephrology Nursing Journal. 2011 Mar 1;38(2).
23. Ran KJ, Hyde C. Nephrology nursing practice: more than technical expertise. EDTNA-ERCA Journal. 1999 Oct 12;25(4):5-8.
24. Denise FP, Cheryl B. Essentials of nursing research: Appraising evidence for nursing practice. Lippincott Williams and Wilkins pp-26-27. 2013.