ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 17, Issue, 12, pp.35765-35773, December, 2025
DOI: https://doi.org/10.24941/ijcr.49928.12.2025

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A STUDY TO ASSESS THE BURDEN AMONG THE CAREGIVERS OF CHRONIC KIDNEY DISEASE (CKD) PATIENTS VISITING THE DIALYSIS UNIT OF A SELECTED TERTIARY CARE HOSPITAL, LUDHIANA, PUNJAB

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ARTICLE INFO

Article History:
Received 19th September, 2025
Received in revised form
15th October, 2025
Accepted 31st November, 2025
Published online 30th December, 2025

Keywords:

Chronic Kidney Disease (CKD)
Caregiver burden
Dialysis
Caregiver well-being
ZBI (Zarit Burden Interview Scale)

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ABSTRACT

Background: Chronic Kidney Disease (CKD) is a progressive and irreversible condition characterized by the gradual loss of kidney function over time, often leading to end-stage renal disease (ESRD) requiring renal replacement therapy such as dialysis. The increasing global prevalence of CKD has made it a major public health concern, with significant clinical, social, and economic implications. Dialysis, while life-sustaining, imposes a considerable physical, emotional, and financial strain not only on patients but also on their families and caregivers. Therefore, this study aims to assess the burden among the caregivers of Chronic Kidney Disease (CKD) patients. **Aim** To assess the burden among the caregivers of Chronic Kidney Disease (CKD) patients.

Objectives

- To assess the level of burden among the caregivers of Chronic Kidney Disease (CKD) patients.
- To find out the association of burden among the caregivers of Chronic Kidney Disease (CKD) patients with their selected socio-demographic variables.
- To prepare and disseminate IEC material (Pamphlet) on coping strategies for the caregivers of Chronic Kidney Disease (CKD) patients.

Methods: A descriptive study was conducted on 100 caregivers of CKD patients visiting the dialysis unit through a purposive sampling technique at DMC & Hospital, Ludhiana. The Zarit Burden Interview Scale was used to assess the level of burden among the caregivers. The data was analyzed using descriptive and inferential statistics. **Results:** The study revealed that 44.0% of the caregivers belonged to the age group of 39- 59 years, with a mean age of 45.64 ± 15.35. Furthermore, 60.0% were females, 65.0% belonged to the Hindu religion, 72.0% of the caregivers resided in an urban area. The majority of the caregivers,i.e.. 51.0% were graduate and 52.0% belonged to lower middle class family. The study further revealed that 90.0% of the patients suffered from stage 5 of CKD, and 69.0% of the patients underwent dialysis twice a week. The data also showed that 67.0% reported having comorbidity. The study also showed that among 100 caregivers i.e.., 45.0% had a mild to moderate level of burden with a mean score of 30.5±5.48. Lastly, no significance was found between the socio-demographic variables and the level of burden. **Conclusion:** The present study concluded that most of the caregivers of patients visiting the dialysis unit of a tertiary care hospital had a mild to moderate level of burden among them. All the socio-demographic variables in the study showed no association with the level of burden.

Citation: Inderpreet Kaur, Japinder Singh, Mrs. Sunita Rani, Jashanpreet Kaur, Jashanpreet Kaur, Jashanpreet Singh, Jaskiran Kaur, Jaspreet Kaur, Jefie James, Kanwaljit Kaur and Karanveer Singh. 2025. "A study to assess the burden among the caregivers of chronic kidney disease (ckd) patients visiting the dialysis unit of a selected tertiary care hospital, Ludhiana, Punjab.". ***International Journal of Current Research, 17, (12), 35765-35773.***

INTRODUCTION

CKD is an aggravated and long-term condition in which the kidneys are not able to maintain electrolyte and metabolic functions, resulting in increased retention of urea and waste in the body. The number of patients with Chronic Kidney Disease (CKD) doubles every 7 years. According to statistics of 1887, 16600 patients are on dialysis. Chronic Kidney Disease (CKD) is among the chronic diseases that is due to the persistence of disease and the continuing process has various effects on the physiological, psychological, functional ability, lifestyle changes, and independence status of both the patient and the family. However, caregivers are the individuals who show the utmost commitment to patients' care. They accompany them in the whole course of treatment and are fully aware of their needs. Caregiver burden is long lasting toil and stressful, undesirable experiences that depict the physical, emotional, and financial cost of care. The burden can be explained objectively and subjectively. The objective burden is alterations and disruptions that occur in the caregiver's life while giving care. Additionally, the response and attitude of caregivers towards the patients is the subjective burden. Family caregivers are forgotten saviors, suffering from neglect of self-care, and often receive inadequate support. The incessant and often lifelong process of providing care can cause mental fatigue in caregivers. They face various problems, including emotional instabilities and reactions, care fatigue, and deterioration of the caregiver's health. Fatigue is the most important health indicator that is associated with poor work performance, negative emotions, and even increased risk of sudden death. Neglecting the mental health of caregivers may have grave consequences for patients health. Caregivers who were the patient's spouse and those who had lower incomes had experienced more fatigue. Measuring caregiver burden in patients with Chronic Kidney Disease (CKD)is important to understand the impact of caregiving to identify areas of experiencing difficulty and track changes in caregivers' burden over time, with the severity of the disease.

MATERIAL AND METHODS

RESEARCH APPROACH: A quantitative research approach was used to assess the burden among the caregivers of Chronic Kidney Disease (CKD)patients visiting the dialysis unit of a tertiary care hospital, Ludhiana, Punjab.

RESEARCH DESIGN: A descriptive research design was used to assess the burden among the caregivers of Chronic Kidney Disease (CKD)patients visiting the dialysis unit of a tertiary care hospital, Ludhiana, Punjab.

RESEARCH SETTING: The study was conducted in the Dialysis unit of DMC & Hospital, Ludhiana, Punjab. The criteria for selecting this setting was availability of subjects, economy of time, easy access, familiarity of the researcher with the setting, expected cooperation, and administrative support for conducting the study.

TARGET POPULATION: The target population of the study was caregivers of CKD patients visiting the dialysis unit.

Inclusion Criteria: The caregivers of CKD patients who were :
≥ 18 years of age.
taking care for ≥ 6 months
able to understand English, Hindi, or Punjabi.

Exclusion Criteria: The caregivers of CKD patients who were :
with a history of any psychiatric illness.
caring for patients in other wards of the hospital
not willing to participate in the study.

SAMPLE : The sample of the study was caregivers of CKD patients taking care ≥ 6 months.

SAMPLING TECHNIQUE: The purposive sampling technique was used in this study.

SAMPLE SIZE: A sample of 100 caregivers was selected.

SELECTION AND DEVELOPMENT OF A RESEARCH TOOL

A comprehensive literature review was done to choose and develop tools for the selection & development of tools. It includes socio demographic profile of the caregiver, the clinical profile of the patient, and the Zarit Burden Interview (Likert scale).

DESCRIPTION OF THE TOOL: The tool consists of the following parts:

PART-A: Socio-demographic profile: It consists of 11 items regarding sociodemographic variables, i.e, age, gender, religion, habitat, type of family, occupation, marital status, education, relationship with the patient, duration of care, and socio-economic status as per the Kuppuswamy Socioeconomic Status Scale (2024).

PART-B: Clinical Profile: It included components like the stage of the CKD patient, frequency of dialysis visits with the patient, any co-morbidities, intra-dialysis or post-dialysis complications faced by the patient, or any other health department that caregiver visits along with the patient, and if yes, then how frequently.

PART-C: The Zarit Burden Interview: The Zarit Burden Interview (Likert scale) was used to examine the burden among the caregivers of Chronic Kidney Disease (CKD) patients. This tool was developed by Steven H. Zarit, Nancy K. Orr & Judy M. Zarit in 1980. The tool contains 22 items and has responses like never (0), rarely (1), sometimes (2), quite frequently (3), and nearly always (4), rated from 0 to 4. Higher scores indicate a greater burden.

CRITERION MEASURES

The burden score refers to the total score on the items in the questionnaire by the caregivers.

LEVELS OF BURDEN	SCORE	%
Little or no burden	0-20	61-88
Mild to Moderate burden	21-40	24-45
Moderate to Severe burden	4 1-60	46-68
Severe burden	61-88	69-100

Total no. of items: 22
Maximum Score: 88
Minimum Score: 0

VALIDITY OF THE TOOL: The tools were valid to use in the research study.

RELIABILITY OF THE TOOL: The obtained value was **0.854**; the tool was found to be reliable.

PILOT STUDY: To assess the feasibility of the study, a pilot study was conducted on 1/10th of the subjects i.e.., 10 patients visiting the dialysis unit in DMC & Hospital, Ludhiana, Punjab.

PLAN FOR DATA ANALYSIS: Analysis of data was done in accordance with the objectives of the study by using descriptive and inferential statistics. Calculation has been done using the statistical software SPSS version 25.0, and the significance of the effect or difference was established at a $p \leq 0.05$ level.

PLAN FOR WRITING REFERENCES: The references were written in Vancouver style 1993 as per the recommendations of the research committee of DMC & Hospital, Ludhiana, and Baba Farid University of Health Sciences, Faridkot.

RESULTS

The study revealed that 44% of the caregivers belonged to the age group of 39- 59 years, with the mean age 45.64 ± 15.35. Furthermore, 60% were females, 65% belonged to the Hindu religion, 72% of the caregivers resided in an urban area. 61% of the caregivers were non-working, and 39% were working. 58% of the caregivers belonged to a nuclear family, and 79% were married. The majority of the caregivers,i.e.. 51% were graduates, and 52% belonged to lower-middle-class families. The study further revealed that 90% of the patients suffered from stage 5 of CKD, and 69% among those were patients undergoing dialysis twice a week. The data also showed that 67% reported comorbidity. Hypertension (65.6%) and diabetes (35.8%) as major ones. The most common complication facedby patients during dialysis was blood pressure fluctuation (27.5%). Post dialysis, generalized weakness (85%) was the most common complication. The study also showed that among 100 caregivers of CKD patients, 45% had a mild to moderate level of burden with a mean score of 30.5±5.48. Lastly, no statistically significant association was found between the socio-demographic variables and the level of burden at a $p < 0.05$ level of significance.

Table 1: Frequency and Percentage distribution of primary caregivers as per socio demographic profile

N = 100

Socio-demographic variable	f(%)
Age of caregiver	
18 - 38	36
39 - 59	44
60 - 80	20
Gender	
Male	40
Female	60
Religion	
Sikh	33
Hindu	65
Muslim	1
Other	1
Habitat	
Rural	28
Urban	72
Type of family	
Joint	41
Nuclear	58
Extended	1
Occupation	
Non working	61.0
Working	39.0
Working, n = 39	
Business	24 (61.6)
Farmer	3 (7.6)
Teacher	5 (12.8)
Shopkeeper	3 (7.6)
Nurse	1 (2.5)
Banker	2 (5.1)
Government employee	1 (2.5)
Marital status	
Married	79
Unmarried/single	19
Divorced/separated	2
Educational status	
Illiterate	2
Elementary	13
Secondary	34
Graduate or above	51
Relationship with the patient	
Spouse	47
Children	26
Grandchildren	6
Parents	12
In laws	9
Duration of care	
Less than 1 year	33
1 - 3 years	44
4 - 7 years	23
Socio - economic status	
Upper class	2
Upper middle class	35
Lower middle class	52
Upper lower class	10
Lower class	1

Mean of age (in years) = 45.64 ±15.35

Table no 1 reveals that the majority of caregivers,i.e. 44.0% belonged to the age group of 39- 59 years, 36.0% belonged to the age group of 18- 38 years, and 20.0% belonged to the age group of 60 - 80 years of age.

- Maximum numbers of caregivers,i.e. 60%were female, and 40%were male.
- Majority of the subjects,i.e.65.0%belonged to the Hindu religion followed by 33.0%belonged to the Sikh religion, followed by 1.0% each belonging to the Muslim and other religions.
- Majority of the subjects,i.e.72.0% were living in an urban area, and 28.0% were living in a rural area.
- Majority of the caregivers,i.e. 58.0% belonged to a nuclear family, followed by 41.0%belonged to a joint family, and only 1(1.0%) belonged to an extended family.
- Majority of the caregivers,i.e. 61.0%were non-working,and 39.0% were working.
- Maximum number of caregivers,i.e.79.0%were married, followed by 19.0% were unmarried, followed by 2.0% were divorced.
- Maximum number of caregivers,i.e.51.0% weregraduates, 34.0% were educated up to secondary, 13.0% were educated up to elementary, and 2.0% were illiterate.
- Majority of the caregivers,i.e. 52.0% belonged to lower middle class family, 35.0% belonged to upper middle-class families, 10.0% belonged to upper lower-class families, 2.0% belonged to upper-class families, and 1.0% belonged to lower-class families.

Table 2. Frequency and Percentage distribution as per the clinical profile of the patient

Clinical profile	f (%)
Stage of CKD	
Stage 4	10
Stage 5	90
Frequency of dialysis visits (in a week)	
a) Once	17
b) Twice	69
c) Thrice	13
d) Five times	1
Comorbidity *	
No	33
Yes	67
Comorbidity diagnosis, n = 67	
LVEF	3 (4.4)
Hypertension	44 (65.6)
Hypotension	2 (2.9)
Anemia	1 (1.4)
Diabetes	24 (35.8)
Recurrent UTI	6 (8.9)
Neuropathy	1 (1.4)
Tuberculosis	1 (1.4)
Pitting edema	1 (1.4)
Renal agenesis	2 (2.9)
Paralysis	1 (1.4)
Pott's spine	1 (1.4)
ALD	1 (1.4)
Intra-dialytic complications *	
No	42
Yes	58
Complications ,n = 58	
Leg cramps	2 (3.4)
Nausea	10 (17.2)
Fainting	1 (1.7)
Dizziness	6 (10.3)
BP fluctuation	16 (27.5)
Acidity	1 (1.7)
Headache	5 (8.6)
Blood clot	1 (1.7)
Hypoglycemia	3 (5.1)
Backache	8 (13.7)
Loose motion	2 (3.4)
Shivering	2(3.4)
Hypoxia	4 (6.8)
Hypotension	5 (8.6)
Vomiting	3 (5.1)
Fever	2 (3.4)
Any complication faced after dialysis *	
No	40
Yes	60
Complications , n = 60	
Occasional vomiting	3 (5)
Generalized weakness	51 (85)
Fever	3 (5)
Loss of appetite	2 (3.3)
Hypoglycemia	2 (3.3)
Leg cramp	2 (3.3)
Headache	1 (1.6)

* - Multiple response table

Table 2 represents that majority of the patients i.e. 90% suffers from stage 5 of CKD and 10% of patients suffer from stage.

- The data shows that the majority of patients 69.0% undergo dialysis twice a week. A significant portion 17.0% visit once a week, while only 13.0% visit thrice a week. Only a small percentage 1.0% visit five times a week.

- The data shows that the majority of the patients, 67.0%, reported having a comorbidity, whereas 33.0% did not.
- The data shows that the most common comorbidity faced by patients is hypertension by 65.6%, followed by diabetes 35.8%, LVEF by 4.4%, hypertension by 2.9%, recurrent UTI by 8.9 %, anemia, paralysis, pott's spine, heart attack, and ALD by 1.4%, renal agenesis by 2.9%.
- The table presents the percentage of complications experienced by patients during dialysis. Among intra-dialysis complications, blood pressure fluctuation was most commonly reported (27.5%), followed by nausea (17.2%), backache (13.7%), and dizziness (10.3%). Less frequent issues included fainting (1.7%), acidity (1.7%), and blood clot formation (1.7%).
- Post-dialysis, generalized weakness was most common (85.0%), with occasional vomiting (5.0%), fever (5.0%), loss of appetite (3.3%), and hypoglycemia (3.3%) also reported. Additional complaints included leg cramps (3.3%) and headache (1.6%).

Table 3. Level of burden among the caregivers of Chronic Kidney Disease (CKD) patients

N = 100

Level of Burden	Score	*f*	Mean (%)	Mean±SD
No to mild burden	0 - 20	18	18.0%	10±5.77
Mild to moderate burden	21 - 40	45	45.0%	30.5±5.48
Moderate of severe burden	41 - 60	33	33.0%	50.5±5.48
Severe burden	61 - 88	4	4.0%	77.9±7.79

Overall Mean ± SD = 35.17 ± 16.22; Minimum Score = 0
Maximum Score = 88

Table 3 describes that among 100 participants, majority i.e. 45% of the participants had mild to moderate level of burden with a mean score of 30.5±5.48 followed by 33 (33.0%) with moderate to severe level of burden having a mean score of 50.5±5.48 followed by 18 (18.0%) with no to mild level of burden having a mean score of 10±5.77 and 4(4.0%) had severe level of burden with a mean score of 77.9±7.79. Hence, it can be concluded that the majority of the caregivers had a mild to moderate level of burden.

Table 4. Mean , Standard Deviation and Analysis of Variance of Burden Score of Caregivers of CKD patients according to Age (in years).

N =100

Socio-demographic variables	N	Mean _+SD	df	F/t value	P value
AGE (in years)					
18 - 38	36	2.28±0.815			
39 - 59	44	2.16±0 .745	2	F = 0.318	0.711^{NS}
60 - 80	20	2.30±0.865			
GENDER					
Male	40	2.20±0.791			
Female	60	2.25±0.795	1	t = 0.095	0.758^{NS}
RELIGION					
Sikh	33	2.00±0.750			
Hindu	65	2.37±0.782			0.059^{NS}
Muslim	1	1.00	4	F = 2.56	
Others	1	1.00			
HABITAT					
Rural	28	2.07±0.954			
Urban	72	2.19±0.741	1	t = 0.164	0.687^{NS}
TYPE OF FAMILY					
Joint	41	2.18±0.772			
Nuclear	58	2.25±0.801	2	F = 1.361	0.261^{NS}
Extended	1	1.00			
OCCUPATION					
Non working	61	2.31±0.847			
Working	39		1	F = 1.440	0.256^{NS}
Business	24	2.00±0.659			
Farmer	3	1.33±0.577			
Teacher	5	2.40±0.548			
Shopkeeper	3	2.33±0.577			
Nurse	1	3.00±0.000			
Banker	2	3.00±0.000			
Government employee	1	2.00±0.000			
MARITAL STATUS					
Married	79	2.23±0.767			0.384^{NS}
Unmarried/ single	19	2.32±0.885	3	t =0.967	
Divorced / separated	2	1.50±0.707			
EDUCATION					
Illiterate	2	1.50±0.707			
Elementary	13	2.15±0.899	3	F = 0.658	0.580^{NS}
Secondary	34	2.24±0.819			
Graduate or above	51	2.27±0.750			
RELATIONSHIP WITH PATIENT					
Spouse	47	2.21±0.832			
Children	26	2.12±0.711	95	F = 1.022	0.400^{NS}
Grandchildren	6	2.83±0.983			
Parents	12	2.25±0.866			
In laws	9	2.22±0.441			
DURATION OF CARE (in months)	33	2.24±0.867			
Less than 1 year	44	2.20±0.823	97	F = 0.044	0.957^{NS}
1 - 3 years	23	2.26±0.619			
4-7 years					
SOCIO-ECONOMIC SCALE	2	2.00±.000			
Upper class (I)	35	2.29±.825	95	F = 0.114	0.977^{NS}
Upper middle class (II)	52 10	2.21±.800 2.20±.789			
Lower middle class (III)	1	2.00			
Upper lower class (IV)					
Lower class (V)					

NS = Non-significant

Table 4 Association between participant's level of burden and their socio-demographic variables.

- **AGE (IN YEARS):** The association between age and the level of caregiver burden was analyzed among three age groups: 18–38 years, 39–59 years, and 60–80 years. The mean burden scores were found to be 2.28 ±.815 for the 18–38 age group, 2.16 ± .745 for the 39–59 age group, and 2.30 ± .865 for those aged 60–80 years. An ANOVA test was performed to determine the statistical significance of differences among these groups, yielding an F-value of 0.318 with a corresponding p-value of 0.711. Since the p-value is greater than 0.05, the results indicate that there is no statistically significant association between the age of caregivers and their level of burden.

- **GENDER:** The analysis of caregiver burden by gender revealed that the mean burden score for male caregivers (n=40) was 2.20 ± 0.791, while for female caregivers (n=60), it was slightly higher at 2.25 ± 0.795. No transgender participants were reported in the study. An independent samples t-test was conducted to assess the significance of the difference between male and female caregivers, yielding a t-value of 0.095 with a corresponding p-value of 0.758. Since the p-value is greater than 0.05, the result is not statistically significant. This indicates that there is no meaningful difference in the level of burden experienced by male and female caregivers in the study population.

- **RELIGION:** The relationship between caregivers' religion and their level of burden was examined among participants identifying as Sikh, Hindu, Muslim, and others. The mean burden score for Sikh caregivers (n = 33) was 2.00 ± 0.750, while for Hindu caregivers (n = 65), it was slightly higher at 2.237± 0.782. Only one caregiver was identified as Muslim and "other" with mean burden scores of 1.00 each, respectively. No participants identified as Christian. A one-way ANOVA test was conducted to determine if there was a statistically significant difference in burden levels across religious groups.

The test yielded an F-value of 2.56 and a p-value of 0.059. Since the p-value is greater than 0.05, the results indicate that there is no statistically significant association between religion and the level of caregiver burden in this study population.

- **HABITAT:** The relationship between the caregivers' place of residence (habitat) and their level of burden was examined by comparing rural and urban populations. Caregivers residing in rural areas (n = 28) had a mean burden score of 2.07 ± 0.954, whereas those from urban areas (n = 72) had a slightly higher mean burden score of 2.19 ± 0.741. An independent samples t-test was conducted to assess the statistical significance of this difference. The test yielded a t-value of .164 with a p-value of .687. As the p-value exceeds the conventional threshold of 0.05, the result indicates no statistically significant association between the habitat of caregivers and the level of burden they experience.

- **TYPE OF FAMILY:** The level of caregiver burden was compared across different types of family structures—joint, nuclear, and extended. Caregivers from joint families (n = 41) had a mean burden score of 2.18 ± 0.772, while those from nuclear families (n = 58) had a mean score of 2.25 ± 0.801. Only one caregiver belonged to an extended family, with a burden score of 1.0, which is not sufficient for meaningful comparison. A one-way ANOVA test was applied to examine the association between family type and burden level, resulting in an F-value of 1.361 and a p-value of 0.261. Since the p-value exceeds 0.05, the result is not statistically significant. This indicates that there is no significant association between the type of family and the level of burden experienced by caregivers in this study

- **OCCUPATION:** The association between the occupational status of caregivers and their level of burden was assessed by comparing working and non-working individuals. The mean burden score for working caregivers (n = 39) was 2.12 ± 0.678, while that for non-working caregivers (n = 61) was 2.31 ± 0.856. An independent samples t-test was conducted to evaluate the significance of the difference in burden levels between these two groups. The test yielded a t-value of 1.308 and a p-value of 0.256. Since the p-value is greater than the conventional threshold of 0.05, the results indicate that there is no statistically significant association between caregivers' occupational status and their level of burden.

- **MARITAL STATUS:** The association between caregivers' marital status and their level of burden was analyzed among married, unmarried/single, and divorced/separated individuals. The mean burden score for married caregivers (n = 79) was 2.23 ± 0.767, while unmarried/single caregivers (n = 19) reported a slightly higher mean burden score of 2.32 ± 0.885. Only two participants were divorced or separated, with a mean burden score of 1.50 ±.707, and there were no participants in the widow/widower category.

  A one-way ANOVA test was performed to assess the statistical significance of these differences, resulting in an F-value of .967 and a p-value of 0.384. Although the unmarried group showed a slightly higher burden, the p-value is greater than 0.05, indicating that the difference is not statistically significant. Therefore, it can be concluded that marital status does not have a significant impact on the level of burden experienced by caregivers in this study.

- **EDUCATION:** The association between the caregivers' level of education and their perceived burden was analyzed across four educational categories: illiterate, elementary, secondary, and graduate or above. Caregivers who were illiterate (n = 2) reported a mean burden score of 1.50 ± .707, followed by those with graduate or higher education (n = 51) at 2.27 ± 0.750. Caregivers with elementary education (n = 13) had a mean score of 2.15 ± 0.899, and those with secondary education (n = 34) reported the mean burden score at 2.24± 0.819. To determine if these differences were statistically significant, a one-way ANOVA test was performed, yielding an F-value of 0.658 and a p-value of 0.580. Since the p-value is greater than 0.05, the results indicate that the differences in burden levels among the various educational groups are not statistically significant.

- **RELATIONSHIP WITH THE PATIENT:** The level of caregiver burden was analyzed in relation to the caregiver's relationship with the patient. The mean burden of spouse is 2.21±0.832, children is 2.12±0.711, grandchildren is 2.83±0.983, parents is 2.25±0.866, and in-lawsis 2.22±0.441. A one-way ANOVA test was conducted to examine statistical significance, resulting in an F-value of 0.504 and a p-value of 0.400. Since the p-value is much greater than 0.05, the findings indicate that there is no statistically significant association between the caregiver's relationship to the patient and the level of burden experienced.

- **DURATION OF CARE:** The relationship between the duration of caregiving and the level of caregiver burden was evaluated across different time intervals. Caregivers who were giving care for less than 1years has a mean burden of 2.24±0.867,1 - 3 years has mean burden of 2.20±0.823, and 4 - 7 years has mean burden of 2.26±0.619.

- A one-way ANOVA was conducted to determine whether these differences were statistically significant, resulting in an F-value of 1.022 and a p-value of 0.957. Since the p-value is greater than 0.05, the difference in caregiver burden across various durations of care is not statistically significant. Therefore, the findings suggest that the length of caregiving does not have a significant impact on the level of burden perceived by caregivers in this study.

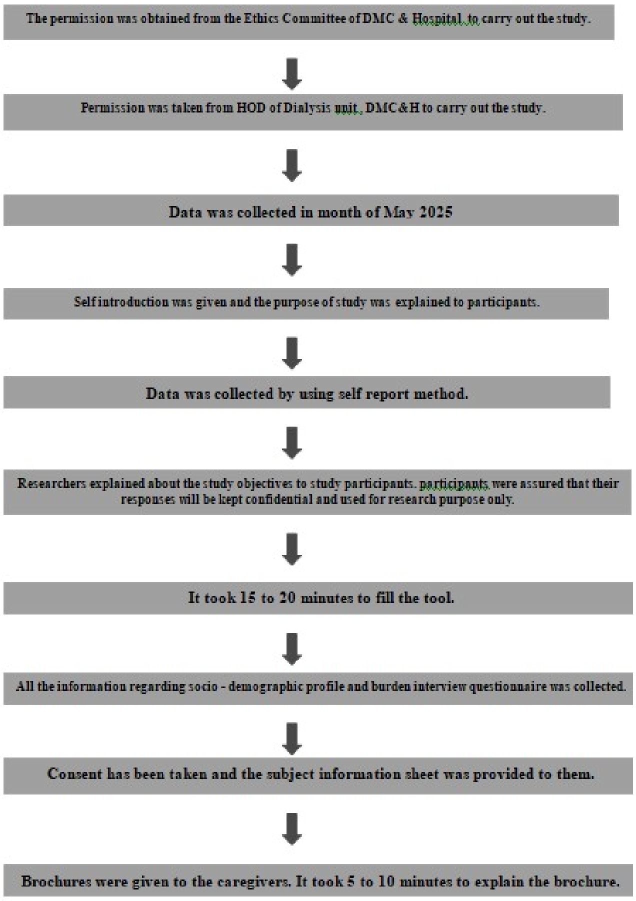
- **SOCIO-ECONOMIC SCALE:** The level of caregiver burden was analyzed in relation to the socioeconomic scale. Caregivers belonging to the upper middle class (II) exhibit the highest mean burden score of 2.29±0.825, indicating a relatively higher level of burden compared to other socioeconomic groups. In contrast, the caregivers belonging to the upper class (I) have the lowest mean burden score of 2.00±0.000, suggesting a lower level of burden.

- The lower middle class (III) and upper lower class (IV) have mean burden scores of 2.21±0.800 and 2.20±0.789, respectively, indicating a moderate level of burden. Notably, the lower class (V) has a mean burden score of 2.00, but the small sample size (n=1) limits the interpretability of this finding.

A one-way ANOVA was conducted to determine whether these differences were statistically significant, resulting in an F-value of .114 and a p-value of 0.977 suggest that the association between socioeconomic scale and level of burden is not statistically significant.

HENCE: Among all the variables studied, no variable was significantly associated with the level of burden. Therefore, it didn't show a statistically significant relationship.

Figure 3 represents that most of the caregivers,i.e. 61.50% are doing business, 12.80% are teachers, 7.60% are shopkeepers and farmers, 5.10% are banker and 2.50% are government employees. Hence, it can be concluded that the majority of the caregivers are doing business as an occupation.



The permission was obtained from the Ethics Committee of DMC & Hospital, to carry out the study.

Permission was taken from HOD of Dialysis unit, DMC&H to carry out the study.

Data was collected in month of May 2025

Self introduction was given and the purpose of study was explained to participants.

Data was collected by using self report method.

Researchers explained about the study objectives to study participants. participants were assured that their responses will be kept confidential and used for research purpose only.

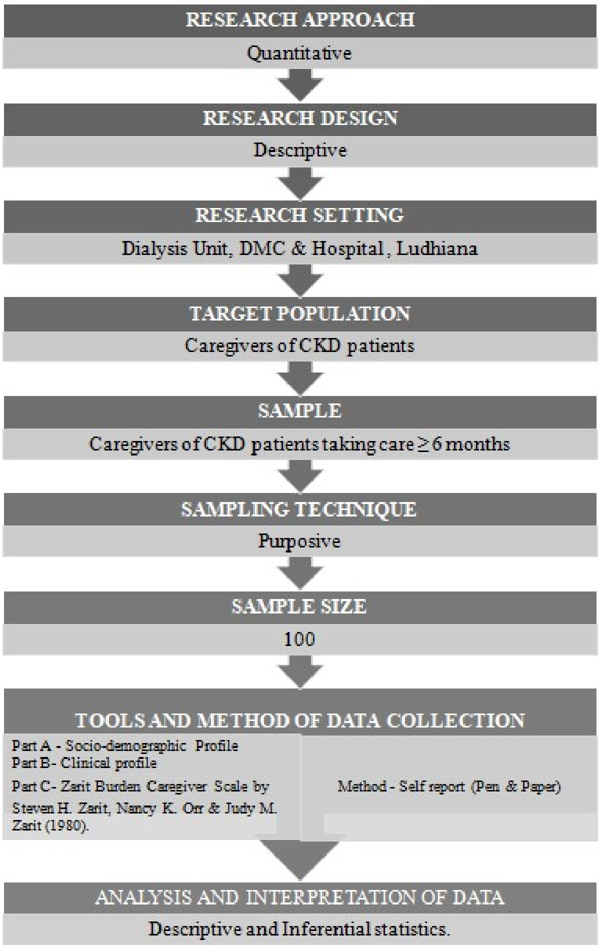
It took 15 to 20 minutes to fill the tool.

All the information regarding socio - demographic profile and burden interview questionnaire was collected.

Consent has been taken and the subject information sheet was provided to them.

Brochures were given to the caregivers. It took 5 to 10 minutes to explain the brochure.

Figure 1. Data Collection Procedure



RESEARCH APPROACH
Quantitative

RESEARCH DESIGN
Descriptive

RESEARCH SETTING
Dialysis Unit, DMC & Hospital, Ludhiana

TARGET POPULATION
Caregivers of CKD patients

SAMPLE
Caregivers of CKD patients taking care ≥ 6 months

SAMPLING TECHNIQUE
Purposive

SAMPLE SIZE
100

TOOLS AND METHOD OF DATA COLLECTION
Part A - Socio-demographic Profile
Part B- Clinical profile
Part C- Zarit Burden Caregiver Scale by Steven H. Zarit, Nancy K. Orr & Judy M. Zarit (1980).
Method - Self report (Pen & Paper)

ANALYSIS AND INTERPRETATION OF DATA
Descriptive and Inferential statistics.

Figure 2. Methodology chart

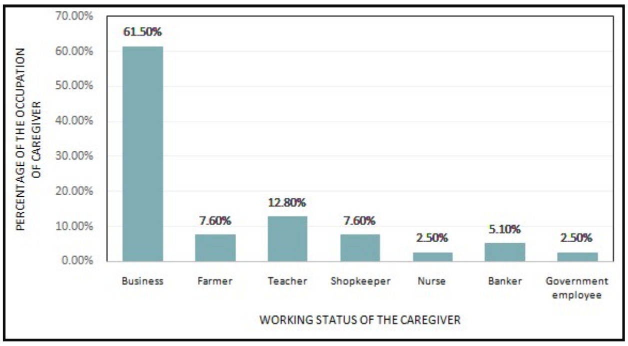


Figure 3. Percentage distribution of occupation of caregivers as per the wor status of the caregiver

Objective 2: To find out the association of burden among the caregivers of Chronic Kidney Disease (CKD) patients with their selected socio-demographic variables.

Objective 3: To prepare and disseminate IEC material (Pamphlet) on coping strategies for the caregivers of Chronic Kidney Disease (CKD) patients.

DISCUSSION

Discussion of the findings of this study has been done in accordance with the analysis and interpretations and the major findings of the present study with other studies under the following sections:

PART A: Socio-demographic and clinical profile

PART B

Objective 1: To assess the level of burden among the caregivers of Chronic Kidney Disease (CKD)patients.

PART A

Socio-demographic profile of caregivers: There were a total of 100 caregivers purposively selected from the dialysis ward of DMC and Hospital. Most of the caregivers were in the age group of 39 - 59 years old, with mean age of 45.64 ± 15.35 (years ± SD) and more than half were female. Moreover , most of the caregivers were residing in urban areas and around half followed the Hindu religion. Also , most of the caregivers were married with graduation and above level of education. Lastly more than half of the sample belonged to lower middle class.

Similarly,Nirmalasari Novita, Sari W Wuri Ike (2022) conducted a study to assess the burden among the caregivers of CKD patients. On 60 family caregivers of hemodialysis patients who were chosen using a purposive technique, a cross- sectional study was carried out in May 2021 in Indonesia. Descriptive and bivariate analysis were used to analyze the data. Of the participants, 65% (n=39) were female, 83.3% (n=50) were married, and 63.3% (n=38) were working. The results showed that hemodialysispatients' caregivers bear a heavy burden.
Unlikely Nagarathnam. M Sivakumar Vishnubotla, Latheef A.A.S (2019) conducted a study on caregivers of renal transplant patients from Southern Andhra Pradesh, India, who participated in a prospective study. This study comprised 50 caregivers in all. This study's data were gathered utilizing a two-section questionnaire. The Zarit Burden interview is one of the tools used in the second section to measure burden. Of the participants, the majority of the caregivers, 20(66.66%), were males. With respect to education, the majority of caregivers 10, 33.33%) were primary school educated, and 19(63.33%) were unemployed.
Clinical profile of the patient: In the present study, majority of the patients 90% had stage 5 of CKD , and moreover the frequency of dialysis visits (in a week) in majority of patients i.e. 69% was twice a week. With respect to co-morbidities, the majority of patients i.e. 67%

had co-morbidities. The most prevalent co-morbidity present in patients was hypertension i.e. 44(65.6%). Furthermore majority of patients i.e. 58% had intra-dialytic complications. Among them the most common complication i.e. 16(27.5%) was blood pressure fluctuation. Also 60% of had post dialytic complications. About 51(85%) of patients had generalized weakness after dialysis. Similarly Sudhakar Vaishnavi ,R .Deepthi , Vaibhavi (2021) conducteda cross sectional study among caregivers of hemodialysis patients at ESIC - MC & PGIMSR hospital. A study sample of 86 was selected using simple random sampling methods. When characteristics of disease among patients were studied duration of dialysis was on an average of 2.8 years with 2 - 3 dialysis per week. Hypertension was the most common co-morbidity followed by diabetes and insomnia.

Unlikely Mashayekhi Fatemeh ,PilevarzadehMotahareh , Rafati Foozieh (2015) conducted a descriptive study in 2014 to assess caregiver burden in the caregivers of patients undergoing hemodialysis in two government hospitals in southern Iran. A total of 69 patients were under hemodialysis. The results showed that most of the patients i.e. 44(86.3%) had a weekly dialysis frequency of 3 times. Also majority of the patients i.e. 25(49%) had diabetes.

PART B

Objective 1 : To assess the level of burden among the caregivers of Chronic Kidney Disease (CKD)patients: Findings of present study revealed that the total mean burden score was 35.17± 16.22 in which majority 45% of the caregivers had mild to moderate level of burden ,33% had moderate to severe level of burden , 18% had no to mild level of burden and rest of 4% had severe level of burden.

A similar study was conducted by Chhetri Khatri Srijana , Baral Rojina to assess the level of burden among caregivers of hemodialysispatients . Simple random sampling technique was used. The study revealed that majority 60 (48.78%) had mild to moderate level of burden while 53 (43.08%) had moderate to severe level of burden. The median scores of burden among caregivers was (39.30 ±11.68) with 44.65%. Unlikely Joseph S.J , Bhandari S.S , Dutta S , khatri D, Upadhyay A (2021) conducted a hospital based cross sectional study at the hemodialysis unit of Sikkim Manipal Institute of Medical Sciences (SMIMS) and Sir Thutob Namgyal memorial hospital, Gangtok ,Sikkim , India. This study was done from March 2016 to march 2017. A total of 51 caregivers between the age of 18 to 65 years of age from two dialysis unit in Sikkim were assessed cross - sectionally. The Zarit caregiver burden scale was administered to measure the caregiver burden. 68.6% of caregivers had mild to severe levels of caregiver burden. Female gender, older caregivers, and caregivers attending patients with a longer history of hemodialysis reported a more severe burden.

Objective 2: To find out the association of burden among the caregivers of Chronic Kidney Disease (CKD) patients with their selected socio-demographic variables.

In the present study ,it is revealed that all socio demographic variables such as age, gender, religion, educational status, habitat, type of family, occupation, relationship with patient, marital status, duration of care and socio –economic status did not show statistical significant associations (p> 0.05). A similar study was conducted by Pio T M Theresia ,Prihanto Budi Junaidi , Jahan Yasmin, Hirose Naoki, Kazawa Kana, Moriyama Michiko et al. (2022) conducted a descriptive ,cross sectional study from September to October 2020. A total of 104 caregivers with mean age of 44.4 12.7 years in the hemodialysis department of a hospital in Indonesia were examined. Zarit Burden Interview (ZBI), hospital anxiety and depression scale andWHOQOL - BREF were used. The study revealed that the socio-demographic variables were not associated with the level of burden among the caregivers. Unlikely Sharma Maneesh, Lakhara Pooja, Sharma Rakesh , Jelly Prasuna, Sharma , K Suresh (2020) in their study found a significant association of caregivers burden with various socio-demographic variables. Results had found that female caregivers, those of middle age , with lower educational level , unemployed or low income families experience higher levels of burden . Longer duration of caregiving increases the frequency of dialysis , hence increases the overall burden .

CONCLUSION

The present study concluded that most of the caregivers of patients visiting the dialysis unit of tertiary care hospital had mild to moderate level of burden among them. All the socio demographic variables in the study showed no association with the level of burden. Given that caregivers experience a mild to moderate level of burden , interventions or support systems could be developed to help alleviate this burden , potentially improving caregiver well being and patient care.

ACKNOWLEDGEMENT

First and foremost, we thank Almighty God for His constant guidance, strength, and blessings that made the completion of this research possible. There is a French proverb that goes, “ Gratitude unlocks the fullness of life” . We would like this acknowledgement to turn what we have into enough and more. We express our heartfelt gratitude to Prof. Dr. (Mrs.) Triza Jiwan, Principal and HOD, Mental Health (Psychiatric) Nursing, DMC&H College of Nursing, Malakpur, Ludhiana, for her valuable guidance, encouragement, and continuous support throughout the study. We sincerely thank our respected advisor, Prof. Dr. (Mrs.) Nidhi Sagar, Vice Principal and HOD, Obstetric& Gynaecology Nursing, DMC&H College of Nursing, Malakpur, Ludhiana, for her inspiration, motivation, and expert direction at every stage of this research. Our special thanks go to Mrs. Meenakshi, Associate Professor, Community Health Nursing and Research Coordinator, DMC&H College of Nursing, Malakpur, Ludhiana, for her constant support, guidance, and encouragement, which greatly strengthened this work. We also extend our sincere thanks to all the experts who generously shared their time, knowledge, and valuable suggestions, helping us improve the quality of this research. We appreciate the support of the library staff for their assistance and the Ethics Committee of DMC&H, Ludhiana, for granting ethical clearance. We are thankful to Dr. Vikas Makkar, HOD, Dialysis Unit, DMC&H, Ludhiana, for permitting us to conduct the study, and to the administrative staff of DMC&H College of Nursing, Malakpur, Ludhiana, for their cooperation and support. Above all, we are forever grateful to our parents for their unconditional love, patience, and constant encouragement. We also thank everyone who, in one way or another, contributed to the successful completion of this research.

Conflict of Interest: None declared

Funding: None

LIST OF ABBREVIATIONS

*	Multiple Response
ANOVA	Analysis Of Variance
ALD	Acute Liver Disease
ESRD	End-stage renal disease
CKD	Chronic Kidney Disease
DMC&H	Dayanand Medical College and Hospital
df	Degree of Freedom
ESRD	End-stage renal disease
f	Frequency
HOD	Head Of Department
IEC	Information Education and Communication
LVEF	Left Ventricular Ejection Fraction
NS	Non Significant
N / n	Sample Size
p	Level of Significance
SD	Standard Deviation
SPSS	Statistical Package ForThe Social Sciences
UTI	Urinary Tract Infection
ZBI	Zarit Burden Interview

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