

Research Article

Factors Associated with Caregiver Syndrome of Patients with Chronic Kidney Disease on Peritoneal Dialysis in Obregon City, Mexico

Valdez-Gil IG* and Corral-Castillo JA

Department of Family Medicine, Family Medicine Unit #1, IMSS, Sonora, Mexico

***Corresponding author:** Valdez-Gil Isabel Guadalupe, Department of Family Medicine, Family Medicine Unit #1, IMSS, Sonora, Mexico**Received:** May 17, 2022; **Accepted:** June 20, 2022;**Published:** June 27, 2022**Abstract**

Background: Chronic diseases are one of the main causes of dependency and disability, which will cause the patient to require a caregiver at some point, consequently the prevalence of caregiver syndrome will increase. Caregiver syndrome is defined as the multidimensional response of negative appraisal and perceived stress as a result of caring for an individual with a medical condition.

Objective: To determine the factors associated with caregiver syndrome in patients with chronic kidney disease on peritoneal dialysis.

Methods: Cross-sectional analytical study. The variables collected were: sex, age, marital status, relationship, socioeconomic level, and hours of care per day, months of patient care, occupation, caregiver syndrome and anxiety. To know the caregiver syndrome, the questionnaire "Zarit Caregiver Scale" was applied. To establish symptoms of anxiety, the "Beck Anxiety Inventory" was used. In the bivariate analysis, odds ratio and Chi-Square with a confidence interval of 95% was implemented, a $p < 0.05$ was considered significant.

Results: Of the 69 patients in the population, 44 suffered caregiver syndrome. The grade of caregiver syndrome was: intense overload 42% and light overload 21%. Caregiver profile: 49 (71%) women with a mean age of 44 years, married. 33 (47%) caregivers are sons/daughter of the patient, 34 (49%) were working, 44 (63%) were work active, 42 (60%) caregivers spent more than 10 hours with the patient, 28 (40%) had between 1 and 6 months in this activity. 42 (60%) presented symptoms of anxiety. A significant association ($p < 0.05$) was found between caregiver syndrome and the variables marital status, socioeconomic level, kinship, occupation, anxiety and time in care.

Conclusions: The prevalence of caregiver syndrome is higher in the state of Sonora compared to the Northeast and Southeast of Mexico. The profile of the caregiver has not changed much despite the evolution over time, but the prevalence of caregiver syndrome is increasing.

Keywords: Caregiver Syndrome; Chronic Kidney Disease; Primary Caregiver

Introduction

Currently in Mexico, 47.8% of older adults have some type of disability and suffer the consequences of uncontrolled chronic diseases, eventually requiring more support from informal caregivers [1]. Terminal Chronic Kidney Disease is one of the main diseases that, due to its long evolution, cause total or partial dependence in the individuals who suffer from it, which leads to the need for an informal caregiver [2]. A caregiver is defined as any person who spends most of their time caring for the patient, covering their basic needs, who provides physical, emotional and sometimes economic support to any disabled or dependent patient; most informal caregivers are characterized by having an affective bond, with family members being the main caregivers and not receiving financial remuneration for their role as caregivers [3,4].

All people who perform a caregiver role without the proper

knowledge, training and technique will suffer an overload or collapse in their health status. Secondary to all the adaptation changes, and in the performance of their role, caregivers tend to suffer a series of alterations in their biopsychosocial health status, and at a certain point in their lives they suffer a collapse or overload, which is defined as the multidimensional response of negative appreciation and perceived stress as a result of caring for an individual causing a set of physical, mental and socioeconomic problems in caregivers [5-6]. During the disease evolution process, the caregiver is completely unaware of the risk involved in playing this role for a prolonged and indefinite time. The risk factors that are recognized for overload are divided into 3 aspects; factors related to the person cared for, factors related to the caregiver and factors related to social support [7].

The diagnosis is usually based on an adequate clinical history, as well as on the application of the Zarit caregiver scale. The caregiver syndrome (CS) leads to a deterioration of the quality of life, the

World Health Organization (WAO) defines it as "the perception that an individual has of his place in existence, in the context of the culture and the system of values in those he lives and in relation to his expectations, his rules and concerns" [7] having repercussions on his personal, family and social functionality. The present study aims to determine the factors associated with caregiver syndrome in patients with chronic kidney disease on peritoneal dialysis.

Material and Methods

Study Design and Population

An analytical cross-sectional study was carried out in Obregon City, Mexico, during March and August 2020, the research was carried out in the Family Medicine Unit #1 (FMU 01) of the Instituto Mexicano del Seguro Social (IMSS). 69 participants aged 20 to 70 years who were companions of patients with CKD during the outpatient consultation, who agreed to participate in the study through informed consent, were interviewed. A convenience sampling was performed, including all primary caregivers of patients with chronic kidney disease on peritoneal dialysis. Participants with a history of diagnosis of psychiatric illness and who shared patient care with another person were excluded from the study.

Variables

The collection of variables was done with a standardized data form. The variables collected were: sex, age, marital status, kinship, socioeconomic level, hours dedicated to care, time spent caring for the patient, occupation, caregiver syndrome and anxiety. The caregiver syndrome diagnosis was made with the Zarit scale, an instrument validated in several languages, including Spanish, with a Cronbach's alpha of 0.90. It consists of 22 items on a Likert-type scale with 5 response options; 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = almost always. The total score ranges from 0-88 points, with the following cut-off points; less than 46 points there is no overload; 47-55 points, slight overload; more than 56 points, intense overload. The Beck Anxiety Inventory is an instrument that describes anxiety symptoms related to physical manifestations, validated with a Cronbach's alpha 0.83, it is composed of 21 items on a Likert-type scale, with the following cut-off points: 0-21 points, mild anxiety; 22-35 points, moderate anxiety; and more than 36 points, severe anxiety.

Statistical analysis

Once the information was collected, the analysis was carried out using the SPSS version 25. Descriptive statistics were used, the qualitative variables were expressed as frequencies and percentages, and the quantitative variables as measures of central tendency and dispersion. In the inferential analysis, the non-parametric chi-square test was used for categorical variables and odds ratio for relative risk. The results were evaluated in a confidence interval of 95%, a value of $p < 0.05$ was considered as significant.

Ethics

The study was approved by the Local Committee for Ethics and Health Research number 204, with registration number R-2021-2603-042. The research was conducted under the General Health Law on Health Research, the Declaration of Helsinki and bioethical principles.

Results

69 surveys were applied to caregivers of patients with chronic kidney disease on peritoneal dialysis. The age distribution was from 20 to 60 years old with an average of 44.01 ± 11.27 . Regarding gender, 71% (n= 49) were female; 71% (n= 49) were married. The most frequent socioeconomic level (49%) was working class. According to kinship; 47% (n= 33) were sons/daughter who were responsible for the care of the patient; 60% (n= 42) of the caregivers had more than 10 hours of care per day, with a median of 4. In relation to the time spent as a caregiver; 40% (n= 28) were between 1 and 6 months old. In the occupation, 63% were active workers. Of the total number of caregivers with anxiety, 34% (n= 24) presented mild symptoms, 13% (n= 9) moderate symptoms, and 13% (n= 9) severe symptoms. According to the overload classification: 21% (n= 15) had mild overload and 42% (n= 29) intense overload.

In factors associated with CS; caregiver age had statistical significance ($p < 0.05$) with an odds ratio of 2.7 (95% CI 1.1-7.8). In relation to gender, no significance was obtained ($p = 0.1$), however, it was found that women have a higher frequency of CS. The most frequent marital status was married, a result with statistical significance ($p = 0.03$) with an odds ratio of 3.05 (CI 1.1-8.9). It was observed that sons/daughters are more susceptible to overload, identifying that there is a statistically significant dependence between overload and kinship ($p = 0.04$) with an odds ratio of 1.5 (95% CI 1.3-3.4). The socioeconomic level showed a significant association ($p = 0.01$) with an odds ratio of 3.1 (95% CI 1.1-8.86). Caregivers who had been performing their role for more than 12 months are more overloaded, presenting a significant association ($p = 0.005$) with an odds ratio of 8.8 (95% CI 2.2-33.7). In the hours dedicated to care there is no statistical dependence ($p = 0.09$), however, those

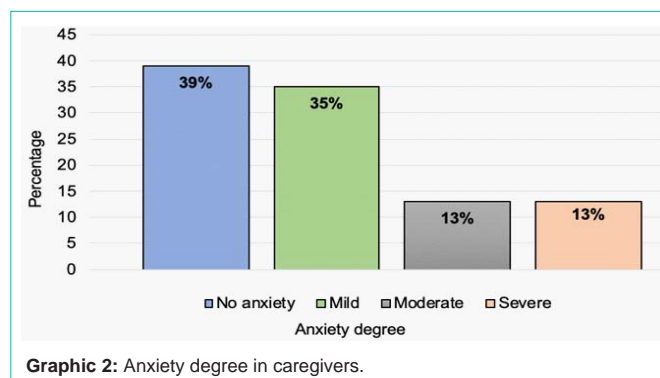
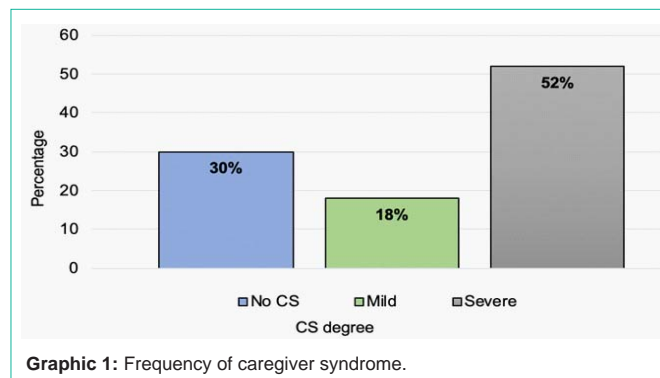


Table 1: Baseline characteristics of participants.

Characteristic	n (%)	CI 95%
Age		
< 40 years	46 (67)	55-62
> 40 years	23 (33)	37-44
Sex		
Male	20 (29)	55-62
Female	49 (71)	37-44
Kinship		
Partner	25 (36)	47-54
Son – daughter	33 (48)	20-27
Other	11 (16)	16-21
Marital status		
Married	49 (71)	0.2-2
Single	18 (26)	1-3
Other	2 (3)	26-33
Occupation		
Worker	44 (64)	3-6
No worker	25 (36)	17-22
Time beingcaregiver		
1 – 6 months	28 (41)	26-33
7 – 12 months	15 (22)	26-33
>12 months	26 (37)	26-33
Caregiver (hr/day)		
< 10 hours	42 (61)	26-33
> 10 hours	27 (39)	26-33

n= frequency, %= percentage, CI 95%= confidence interval.

caregivers who dedicate more than 10 hours to care show greater overload. When associating the occupation with the degree of overload, significant differences were found ($p= 0.04$) with an odds ratio of 2.8 (95% CI 1.1-8.07). Caregivers with symptoms of anxiety have a greater tendency to overload, a significant dependency was established ($p < 0.001$) with an odds ratio of 14 (95% CI 4.3-47).

Discussion

Romero-Massa reported that the caregivers belonged to the range of 36 to 59 years with a mean age of 40 years [7]. In the previous research carried out by Fernández-Castillo et al, it was found that 85.7% of the informal caregivers were women, with a mean age of 44 years, ranging from 20 to 62 [8]; These results are similar to our study. In relation to the kinship between the caregiver-patient binomial, it was found that those who played the role of the primary caregiver were the sons/daughters, while the study by Velázquez-Pérez reported that the main caregivers were the spouses (41%) and Aguilera-Pérez Flores et al found that 39% were wives who were in charge of patient care [9].

Bello-Pino interviewed 281 caregivers, of whom 57% were married [10], despite coinciding with marital status, in our research a higher percentage of married caregivers was found, differing from

Table 2: Factors associated with caregiver syndrome.

Variable	N	OR (CI 95%)	p
Age			
> 40 years	33	2.7 (1.1-7.8)	< 0.05
< 40 years	11		
Sex			
Female	34	0.44 (0.1-1.2)	0.1
Male	10		
Marital status			
Withpartner	35	3.0 (1.1-8.9)	0.03
No partner	9		
Socioeconomical leve			
Low	28	3.1 (1.1-8.8)	0.01
Medium	16		
Time beingcaregiver			
> 12 months	24	8.8 (2.2-33.7)	0.005
< 12 months	20		
Hours/daycaregiver			
> 10 hours	30	2.3 (0.8-6.3)	0.09
< 10 hours	14		
Occupation			
Worker	32	2.8 (1.1-8.07)	0.04
No worker	12		
Anxiety			
Yes	36	14 (4.3-47)	<0.001
No	8		

OR= Odds ratio, p= Pearson χ^2 , CI 95%= confidence interval, N= frequency

Cabada-Ramos where single caregivers predominated with 54% [11]. Laguado-Jaimes reported that 25% of the caregivers were dedicated to the home [12]; these results are different from our research, where most of the caregivers were employees. Regarding the time spent caring for the patient, Morales-Cariño found that 26% had spent more than 37 months caring for the patient [13]; their results are similar to the study by Del Campo-Navarro, where caregivers who were around 3 years old present a greater overload of 27% [14]; these results are different from those of our research, reporting that the caregivers most susceptible to overload are those who had been caregivers for one year. In this sense, Zepeda-Álvarez identifies that, longer caregiver's activity makes greater the overload, reporting that 86% of the main caregivers dedicated 24 hours to the patient [15].

Due to the great effort, both physical and emotional, made by caregivers, the time they provide care to the patient, the uncertainty of not knowing what will happen, all these situations cause a radical change in their daily lives, generating an alteration in their state of health. De Valle-Alonso reports that 33% have intense overload [16], compared to 29% that was reported by Cabada-Ramos, however, in this study the caregivers without overload were higher. Del Campo-Navarro reports that 48% is overloaded and in our population, 52% present a severe overload, the percentage obtained being higher in

comparison with previous investigations; the percentage (17%) of overload is even lower in the study by Pérez-Bruno [17].

Conclusions

In conclusion, all objectives were met satisfactorily, finding a higher prevalence of overload in our region compared to national studies carried out in the northeast and southeast of the country, but with a similar percentage found in international studies, using the same Zarit questionnaire. Therefore, during medical care we must assess that family members who are responsible for the care of a patient with a disability, chronic illness, or any individual who requires care, will be more likely to present overload, affecting their health status. That is why prevention must be implemented, training everyone who acts as a caregiver, making an early diagnosis through the application of a validated instrument as in our research, and thus establishing timely treatment.

References

1. Detección y manejo del colapso del cuidador. Guía de práctica clínica. México: CENETEC; 2015.
2. Instituto Mexicano del Seguro Social. Prevención, Diagnóstico y Tratamiento de la Enfermedad Renal Crónica. Guía de práctica clínica. México: CENETEC; 2009.
3. Rivero-García R, Segura-García E, Juárez-Corpus NB. Sobrecarga del cuidador primario de pacientes en programa de hemodiálisis generada por reingreso hospitalario. *Rev. Dial Traspl. Elsevier España* 2015; 36(2): 72-77.
4. Prieto-Miranda SE, Arias-Ponce N, Villanueva-Muñoz EY, Jiménez-Bernardino CA. Síndrome de sobrecarga del cuidador en familiares de pacientes geriátricos atendidos en un hospital de segundo nivel. *Med Int Méx.* 2015; 32(2): 23-28.
5. Velázquez-Pérez Y, Espín-Andrade AM. Repercusión psicosocial y carga en el cuidador informal de personas con insuficiencia renal crónica terminal. *Rev. cub. salud publica.* 2014; 40(1): 13-17.
6. Romero-Massa E, Rodríguez-Castilla J, Pereira-Díaz B. sobrecarga y calidad de vida en cuidadores familiares de pacientes renales. *Rev. Cubana Enfermer. La Habana, Cuba.* 2015; 31(4): 1-17.
7. Romero-Massa E, Bohórquez-Moreno C, Castro-Muñoz K. Calidad de vida y sobre carga percibida por cuidadores familiares de pacientes con enfermedad renal crónica, Cartagena (Colombia). *Archivos de Medicina.* 2018; 18(1): 105-113.
8. Fernández-Castillo KN, Sotelo-Quiñonez TI, García-Flores RG, Campos Rivera NH, Mercado Ibarra SM. Intervención basada en el modelo de solución de problemas para cuidadores de enfermos renales crónicos. *Psicología y Salud.* 2018; 28(2): 251-259.
9. Aguilera-Flórez AI, Castrillo-Cineira EM, Linares-Fano B, Carnero-García RM, Alonso-Rojo AC, López-Robles P, et al. Análisis dl perfil y la sobrecarga del cuidador primario de pacientes en Diálisis Peritoneal y Hemodiálisis. *EnfermNefrol.* 2016; 19(4): 359-365.
10. Bello-Pineda JG. Sobrecarga del cuidador primario de pacientes con enfermedades crónico degenerativas. México: IMSS; 2014.
11. Cabada-Ramos E, Martínez-Castillo VA. Prevalencia del síndrome de sobrecarga y sintomatología ansiosa depresiva en el cuidador del adulto mayor. *Psicología y Salud.* 2017; (27)1: 53-59.
12. Laguado-Jaimes E. Perfil del cuidador del paciente con Enfermedad Renal Crónica: una revisión de la literatura. *EnfermNefrol.* 2019; 22(4): 352-359.
13. Morales-Cariño EM, Jiménez-Herrera BL, Serrano-Miranda TA. Evaluación del colapso del cuidador primario de pacientes adultos mayores con síndrome de inmovilidad. *Revista de investigación Clínica.* 2012; 64(3): 240-246.
14. Del Campo-Navarro AS, Medina-Quevedo P, Hernández-Pedroza RI, Correa-Valenzuela SE, Peralta-Peña SL et al. Grado de Sobrecarga y Caracterización de Cuidadores de Personas Adultas Mayores con Diabetes Mellitus tipo 2. *Enfermería Global.* 2019; 18(56): 57-67.
15. Zepeda-Álvarez PJ, Muñoz-Mendoza CL. Sobrecarga en cuidadores principales de adultos mayores con dependencia severa en atención primaria de salud. *Gerokomos.* 2019; 30(1): 2-5.
16. De Valle-Alonso MJ, Hernández-López IE, Zúñiga-Vargas ML, Martínez-Aguilera P. Sobrecarga y Burnout en cuidadores informales del adulto mayor. *Enfermería Universitaria.* 2015; 12(1): 19-27.
17. Pérez-Bruno VA, López-Hernández D, Sánchez-Escobar LE, Munguia-Lozano S, Beltrán-Lagunes L et al. Prevalencia de sobrecarga del cuidador en cuidadores primarios de pacientes adultos mayores de 60 años con enfermedades crónicas no transmisibles. *Rev EspMédQuir.* 2019; 24: 19-32.