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Research Article

Quality of Life, Social Support, Fatigue and Satisfaction from Nursing Care in Dialysis Patients: The Impact of Sociodemographic and Clinical Profile

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Abstract

Chronic kidney disease is a global public health problem, which, in combination with an aging population, is expected to increase its impact in the coming years. The aim of this research is to study the effect of the sociodemographic and clinical profile of hemodialysis patients on their quality of life, social support, fatigue and satisfaction from nursing care. A quantitative, primary, non-experimental survey was conducted using the questionnaires "Multidimensional Scale of Perceived Social Support"(a≥ 0.908),FAS (a≥ 0.658), Missoula-VITAS Quality of Life (a≥ 0.622) and nursing care (a = 0.944). The study involved 69 patients with dialysis of a University Hospital, with most having the disease for 0-10 years. The majority of the patients in the research are men, aged 51-80, married with 1-2 children, with an educational level up to that of High school, who live in a city and receive an income of 500-1,500 euros. Data analysis was performed at a significance level of 5%, using the parametric criteria independent samples t-test, ANOVA and the non-parametric Mann Whitney, Kruskal Wallis and Spearman. The necessary ethical issues were observed. Age affected social support (p <0.05) and fatigue (p<0.05). The educational level affected physical fatigue (p= 0.040) and spirituality (p= 0.037). Residence affected spirituality (p = 0.036) and nursing care (p = 0.039). Occupational status influenced social support from friends (p = 0.001). Years in dialysis affected social support (p ≤ 0.027), interpersonal relationships (p = 0.013) and physical fatigue (p = 0.027). It seems that age, educational level, place of residence, professional status and years of dialysis influence the research factors.

Keywords: Dialysis; Quality of life; Fatigue; Social support; Nursing care

Introduction

Hemodialysis is a time-consuming and expensive treatment and requires more restrictions on diet and fluid intake. Long-term hemodialysis causes loss of freedom, dependence on the caregiver, disruption of marriage, family, social life and reduction or lack of income. All these factors affect patients' quality of life [1].

Terms like human development and social welfare are frequently used as equivalent or analogous terms. Quality of life (QOL) is considered as the interplay of various factors of social, health, economic and environmental conditions that cumulatively and often in unknown ways, interact to affect both human and social development at the level of the individual and societies. Current patterns of urban development are based on the ideas of imported Western countries and use capital and natural resource intensive systems. Capital intensity divides the urban population into rich and poor urbanites. Resource intensity is destroying the rural hinterland. The end result is that while there is an affluent class with a very high quality of life, the majority of urban dwellers have very poor environmental quality. Decision makers on the development strategy of urban centers often do not consider this human element. Population migration to urban centers, especially industrial cities, is driving the growth of metropolitan areas [2].

Perceptions of quality of life are influenced by urbanization and living standards, creating a perception that is limited to spe-

cific areas of human life. First, it directs attention to the positive aspects of people's lives, thus contrasting with the deficit orientation of these disciplines. Second, it extends traditional objective measures of health, wealth, and social functioning to include subjective perceptions of well-being. Quality of life is the product of the interaction between social, health, economic and environmental conditions that affect human and social development. The notion that quality of life refers to an indefinite number of states and does not entail valuing life style [2].

Health-related quality of life (HRQoL) is a measure that reflects individuals' subjective experiences of their health status. HRQoL systematically focuses on measuring the relationship between health and health status with quality of life (QoL). It is a dynamic multidimensional model and consists of three main dimensions: the physical, social and mental dimensions of health [3]. Despite the lack of consensus on the definition of QoL, it can be understood as satisfaction or happiness with life, focusing on the areas that the individual considers important. Likewise in the case of HRQOL, what is considered a health indicator is the evaluation of the person's general physical condition, functional impairment, and ability to perform household activities, social interactions, cognitive function and emotional state in relation to their health status. HRQOL measurement tools can facilitate clinical decision-making, assess quality of care, assess population health needs, and help understand how the causes and effects of causes of health problems increase the effect of treatment on physical health, in work performance and personal life. Thus, improvements in QOL become as important as clinical-laboratory responses to interventions, expanding the field of therapeutic outcomes [4].

Health-related quality of life is a cultural concept as revealed by the differential association between HRQOL and clinical outcomes such as patient compliance or survival. HRQOL is recognized as a key health outcome for studies that assess the quality of health care, assess the impact of illness, and analyze cost-effectiveness. In addition, HRQOL has been shown to be clinically important in improving hemodialys is outcome in hemodialysis patients [5].

The aim of this research is to study the effect of the sociodemographic and clinical profile of hemodialysis patients on their quality of life, social support, fatigue and satisfaction from nursing care.

Method

Research design

A quantitative, primary, non-experimental survey was conducted including specific variables, such as quality of life, social support and fatigue among hemodialysis patients as well as the satisfaction from nursing care.

Sample

The research population is considered to be all dialysis patients in Greece. Regarding the sample, 69 patients on hemodialysis participated in the research with most to have the disease 0-10 years. The majority of patients are men, aged 51-80 years, married with 1-2 children, with educational level up to that of Lyceum, who live in a city and receive an income of 500-1,500 euros. The criteria for entering or excluding the sample were considered: 1) the conduct of the session of hemodialysis, 2) the age over 18 years, 3) the Greek language and 4) diagnosed with end-stage chronic kidney disease.

Table 1: Sociodemographic and clinical factors.

Factors		N	f%)
Gender	Male	51	73,9
	Female	18	26,1
Age	≤40	7	10,1
	41-50	4	5,8
	51-60	17	24,6
	61-70	24	34,8
	71-80	10	14,5
	>80	7	10,1
Family status	Single	16	23,2
	Married/roommate	46	66,7
	Divorced	2	2,9
	Widowed	5	7,2
Number of children	0	2	4,9
	1	9	22,0
	2	18	43,9
	3	6	14,6
	4	5	12,2
	6	1	2,4
Education	Lack of education	3	4,3
	Primary education	13	18,8
	Obligatory education	9	13,0
	Secondary education	25	36,2
	Technological education	4	5,8
	University education	11	15,9
	Master	1	1,4
	PhD	3	4,3
Residence	Town	48	69,6
	Village	18	26,1
	City	3	4,3
Work status	Public servant	9	13,0
	Private servant	2	2,9
	Student	1	1,4
	Freelancer	8	11,6
	Housewives	4	5,8
	Unemployed	7	10,1
	Pensioner	38	55,1
Monthly income	Without income	3	4,6
	500-1.000	29	44,6
	1.001-1.500	15	23,1
	1.501-2.000	12	18,5
	>2000	6	9,2
Years of dialysis	0-5	37	54,4
	6-10	18	26,5
	11-20	11	16,2
	>20	2	2,9

Questionnaires

For the needs of this research, 3 questionnaires were used: 1) "Multidimensional Scale of Perceived Social Support" [6], 2) Fatigue Assessment Scale (FAS) by Michielsen et al. [7] and 3) Missoula VITAS Quality of Life Index by Theofilou et al. [8]. It emerged from these questionnaires a questionnaire of 60 questions divided into 5 sections.

The 1st section includes 9 questions related to socio-demographic data of the patients, such as gender, age, marital status, number of children, education level, place of residence, employment, monthly income and years in hemodialysis.

The 2nd section refers to perceived social support which was measured according to the "Multidimensional Scale of Perceived Social Support" [6]. The questionnaire includes 12 questions on a 7-point Likert scale 1-7 (1= Strongly Disagree, 2=Strongly Disagree, 3=Disagree, 4=Neutral, 5=Agree, 6=Strongly agree, 7=Strongly agree), and 3 subsections of 4 questions about social support from others, from family and friends. The 3rd section refers to patient fatigue which was measured with the Fatigue Assessment Scale (FAS) questionnaire by Michielsen et al. [7]. The questionnaire includes 10 questions on a five-point Likert scale 1-5 (1= Never, 2=Sometimes, 3= Regularly, 4=Often, 5=Always) and 2 subsections of 5 questions about physical and mental fatigue.

The 4th section includes 16 questions about perceived quality of life of patients which was measured by the Missoula-VITAS Quality of Life questionnaire Index of Theofilou et al. [8]. The questionnaire includes 1 question about global quality of life five-point Likert scale 1-5 (1=Very poor, 2=Poor, 3=Average, 4=Good, 5=Very good) and 15 questions divided into 5 subsections of 3 of quality-of-life questions about symptoms, functioning, interpersonal relationships, wellness and spirituality. In each subsection the 1st question refers to evaluation (scale from -2 to +2), the 2nd to satisfaction (scale from -4 to 4) and the 3rd in importance (from 1 to 5).

The 5th section includes 13 questions on a five-point Likert scale from 1 to 5 (1= Not at all, 2=Little, 3=Moderate, 4=Quite a bit, 5=Too much), related to nursing care.

All procedures were performed in accordance with the ethical standards of the 1964 Declaration of Helsinki, as revised in 2000. Completing the questionnaires was voluntary and was done by the patients themselves. Before the procedure, all participants were informed about the purposes of the research, anonymity, voluntary withdrawal in case they felt uncomfortable and they were given a written consent form.

Results

Table 1 presents the demographics of the respondents. 73.9% (N=51) were men and 26.1% (N=18) were women. Regarding marital status, 66.7% (N=46) were married or cohabiting, 23.2% (N=16) single, 7.2% (N=5) widowed and 2.9% (N=2) from divorcees. Regarding age, 34.8% (N=24) are 61-70 years old, 24.6% (N=17) 51-60, 14.5% (N=10) 71-80, 10.1% (N=7) to 40, 10.1% (N=7) over 80 and 5.8% (N=4) 41-50 years old. What is the effect of demographic profile on levels of perceived social support, fatigue, quality of life and nursing care? In the present research question, the statistically significant results are presented.

Age

Table 2 presents the statistically significant results of the Spearman correlations of age with the survey factors. It appears that age was positively correlated with the factors "Social support from others" (r=0.244, p<0.05), "Physical fatigue" (r=0.265, p<0.05), "Mental fatigue" (r=0.320, p<0.01) and negatively with the factor "Social support from friends" (r=-0.253, p<0.05).

Table 2: Statistically significant Spearman correlations of age with survey factors.

Dimensions	Age
Social support - others	,244[*]
Social support - friends	-,253[*]
Physical fatigue	,265[*]
Mental fatigue	,320[**]

*p<0,05,**p<0,01

Educational level

Table 3 presents the statistically significant results of the ANOVA and Kruskal Wallis tests of the research factors in terms of educational level, where there was a statistically significant difference in mean values in the "Physical fatigue" factor (F (3,64) =2.939, p=0.040) and statistically significant difference in mean scores in the factor "Quality of life-Spirituality" (H (3) =8.500, p=0.037).

Table 3: Statistically significant results of ANOVA and Kruskal Wallis tests of the survey factors with educational level.

Dimension	Educational level	N	M.O.	F (3,64)	p-value	Test
Physical fatigue	To primary education	15	3,23	2,939	**0,040**	ANOVA
	Obligatory-secondary education	34	3,14			
	Technological-university education	15	2,49			
	Master-PhD	4	2,30			
Dimension	**Educational level**	**N**	**M.B.**	**H(3)**	**p-value**	**Test**
Quality of life	To primary education	15	21,30	8,500	**0,037**	Kruskal
Spirituality	Obligatory-secondary education	33	37,26			Wallis
	Technological-university education	15	37,37			
	Master-PhD	4	42,13			

From **Tables 3-4** it appears that in the "Physical fatigue" factor, Technological - University education graduates showed a lower average value (M.O.=2.49) compared to Primary School graduates (M.O.=3.23, p=0.029) and High School (M.O.=3.14, p=0.024).

Table 4: Post hoc analysis LSD for "Physical fatigue" * Educational level.

Educational level(I)	Educational level(J)	Mean difference(I-J)	p-value
To primary education	Obligatory-secondary education	0,08922	0,752
	Technological-university education	,74000*	**0,029**
	Master-PhD	0,93333	0,073
Obligatory-secondary education	To primary education	-0,08922	0,752
	Technological-university education	,65078*	**0,024**
	Master-PhD	0,84412	0,084
Technological-university education	To primary education	-,74000*	**0,029**
	Obligatory-secondary education	-,65078*	**0,024**
	Master-PhD	0,19333	0,707
Master-PhD	To primary education	-0,93333	0,073
	Obligatory-secondary education	-0,84412	0,084
	Technological-university education	-0,19333	0,707

From Table 3 it can be seen that in the factor "Quality of life - Spirituality", the graduates of Primary School (M.B.=21.30) showed a lower average rank compared to the graduates of Middle School-Lyceum (M.B.=37.26, adj.p=0.050) and Technological - University education graduates (M.B.=37.37, p=0.023).

Place of residence

Table 5 presents the statistically significant results of the ANOVA and Kruskal Wallis tests of the survey factors in terms of place of residence, where a statistically significant difference in mean values for the factor occurred "Quality of life-spirituality" (F (2,64) =3.510, p=0.036) and statistically significant difference in means of grades in the factor "Nursing care" (H (2) =6.486, p=0.039).

Table 5: Statistically significant results of ANOVA and Kruskal Wallis tests of survey factors with place of residence.

Dimension	Place of residence	N	Mean	F (2,64)	p-value	Test
Quality of life-spirituality	Town	47	9,53	3,510	**0,036**	ANOVA
	Village	17	-1,47			
	City	3	-1,67			
Dimension	**Place of residence**	**N**	**Mean**	**H(2)**	**p-value**	**Test**
Nursing care	Town	48	31,60	6,486	**0,039**	Kruskal
	Village	17	44,62			Wallis
	City	3	23,50			

Table 6: Sost hoc analysis LSD for "Quality of life-spirituality" * Place of residence.

Place of residence(I)	Place of residence (J)	Mean difference(I-J)	p-value
Town	Village	11,00250*	**0,015**
	City	11,19858	0,232
Village	Town	-11,00250*	**0,015**
	City	0,19608	0,984
City	Town	-11,1986	0,232
	Village	-0,19608	0,984

From **Tables 5-6** it appears that in the factor "Quality of life - spirituality" the average value of the people who are in the town (M.O.=9.53) is statistically higher than the corresponding value of those who are in the village (M.O.=-1.47, p=0.015).

From Table 5 it appears that in the factor "Nursing care" the average rank of people who are in the city (M.B.=31.60) is statistically lower than the corresponding one of those who are in a village (M.B.=44.62, p=0.019).

Employment

Table 7 presents the statistically significant results of the Kruskal Wallis tests of the survey factors in terms of employment, where a statistically significant difference in mean ranks was found in the factor "Social support from friends" (H

(3) =15.456, p=0.001). From Table 7 it follows that in the factor "Social support from friends", the average rank of people who are self-employed (M.B.=55.25) is statistically higher than the corresponding one of those who are retired (M.B.=27.20, adj.p=0.002) public-private employees (M.B.=36.68, p=0.043). In addition, in the same factor the average rank of pensioners (M.B.=27.20) is statistically lower than the corresponding one of the unemployed (M.B.=41.17, p=0.033).

Table 7: Statistically significant results of Kruskal Wallis tests of survey factors with employment.

Dimension	Employment	N	M.B.	H(3)	p-value
Social support - friends	Public-Privateemployee	11	36,68	15,456	**0,001**
	Freelancer	8	55,25		
	Unemployed/student/housewife	12	41,17		
	Pensioner	37	27,20		

Years on dialysis

Table 8 presents the statistically significant results of the Kruskal Wallis tests of the research factors in terms of years on dialysis, where a statistically significant difference in mean ranks was found in the factors "Social support from others" (H (2) =7.968, p=0.019), "Social support from family" (H (2) =7.213, p=0.027), "Quality of life-interpersonal relationships" (H (2) =8.700, p=0.013) and mean values in the "Physical fatigue" factor (F (2,65) =3.825, p=0.027).

Table 8: Statistically significant results of Kruskal Wallis tests and ANOVA of survey factors with years on dialysis.

Dimensions	Years on dialysis	N	M.B.	H(2)	p-value	Test
Social support - others	0-5	37	28,69	7,968	**0,019**	KruskalWallis
	6-10	18	39,33			
	>10	13	44,35			
Social support - family	0-5	37	28,95	7,213	**0,027**	KruskalWallis
	6-10	18	39,42			
	>10	13	43,50			
Quality of life - social relations	0-5	35	27,54	8,700	**0,013**	KruskalWallis
	6-10	17	34,82			
	>10	13	45,31			
Dimension	**Years on dialysis**	**N**	**M.O.**	**F (2,65)**	**p-value**	**Test**
Physical fatigue	0-5	37	2,75	3,825	**0,027**	ANOVA
	6-10	18	3,47			
	>10	13	2,92			

From Table 8 it can be seen that in the factor "Social support from others", the average rank of people with 0-5 years on hemodialysis (M.B.=28.69) is statistically lower than the corresponding one of of people with more than 10 years (M.B.=39.33, adj.p.=0.034).

From Table 8 it appears that in the factor "Social support from family", the average rank of people with 0-5 years on hemodialysis (M.B.=28.95) is statistically lower than the corresponding one of people with more than 10 years (M.B.=39.42, p=0.018).

From Table 8 it appears that in the factor "Quality of life - interpersonal relationships", the average rank of people with 0-5 years on hemodialysis (M.B.=27.54) is statistically lower than the corresponding of people over 10 years old (M.B.=45.31, adj. p=0.011). From Tables 8 and 9 it follows that in the "Physical fatigue" factor, the average value of people with 0-5 years on hemodialysis (M.O.=2.75) is statistically lower than the corresponding value of people with 6-10 years (OR=3.47, p=0.008).

Table 9: Post hoc analysis Bonferonni "Physical fatigue"* Years on hemodialysis.

Years on dialysis (I)	Years on dialysis (J)	Mean difference (I-J)	p-value
0-5	6-10	-,72072*	**0,008**
	>10	-0,17713	0,548
6-10	0-5	,72072*	**0,008**
	>10	0,54359	0,105
> 10	0-5	0,17713	0,548
	6-10	-0,54359	0,105

Discussion

The aim of this research is to study the effect of the sociodemographic and clinical profile of hemodialysis patients on their quality of life, social support, fatigue and satisfaction from nursing care.

In the research question, the effect of the demographic profile on the levels of perceived social support, fatigue, quality of life and nursing care was studied. It turned out that older patients feel that they receive higher social support from people outside the family and lower from friends. In addition, older patients reported being more physically and mentally tired. Similarly in the research of Nugraha et al, 2020[9], elderly patients feel more support from the family and friendly environment, but at the same time more fatigue, which comes from both age and comorbidities [9]. Greater perceived physical fatigue was also present in patients with a lower educational level, who at the same time presented a lower quality of life in the spiritual domain. This finding also results from the research of Tsiamis et al [10], which reinforces that patients with a lower educational level in Greece present a lower quality of life but also greater perceived physical fatigue. After all, the feeling of fatigue is directly linked to the quality of life [10]. Urban residents showed a higher quality of life in the spiritual domain than rural residents, with the latter, however, reporting more satisfaction with the nursing care they receive According to Zyoud et al [5], patients' area of residence is associated with quality of life in the spiritual domain, as urban centers offer more solutions of spiritual satisfaction. On the other hand, the reality of Greece, it is possible to offer greater satisfaction from nursing care to non-urban residents' areas, as it often frees them from time-consuming commutes, long-hour waits and from the coldness of large centers [11]. The feeling of social support from friends was stronger among the self-employed and lower among the retired. This may be due to the greater social exclusion and the difficulty that pensioners in Greece feel in accessing care structures, as well as psychological support structures [12]. In addition, patients with more than 10 years of hemodialysis reported feeling more social support from others and family compared to patients with 0-5 years of hemodialysis, while at the same time they showed higher satisfaction with interpersonal relationships but greater physical fatigue. These results do not agree with the results of The odoritsi et al, [13], where patients with more than 6 and more than 10 years of hemodialysis feel less social support. Also, in this research, patients with more years of treatment felt less satisfied with their interpersonal relationships and their relationships with the medical staff [13]. Nevertheless, all studies agree that patients with more years since the start of hemodialysis show more fatigue [14-20].

Conclusion

The results of the present research are generalizable to the patients of the artificial kidney unit of the Regional University Hospital. In addition, the results cannot be generalized for di-

alysis patients aged 51-80 years, with an education level up to high school, who live in a city and have been patients for up to 10 years, because the sample size was small and did not allow every case the application of parametric statistical tests that have greater power.

A future Pan-Hellenic research is proposed, comparative, in different Hospitals, public and private with stratified sampling, where the size of the sample will be determined by a mathematical formula from the size of the population (Creswell, 2013). Furthermore, it is proposed to change the questionnaire that refers to the quality of life with a questionnaire that, according to previous research, ranges in satisfactory levels of reliability ($\alpha > 0.7$). Finally, it is proposed to add additional factors that can improve the quality of life and reduce fatigue, according to the study of the theoretical framework, as those studied, namely nursing care and social support showed a low.

References

1. Mollaoglu M. Perceived social support, anxiety, and self-care among patients receiving hemodialysis. DialTransplant. 2006; 35: 144-155.

2. Ghandhi D, Shah J, Shah A. A Review: Factors Affecting Quality of Life Index. GDR Journals. 141.

3. Karyani AK, Rashidian A, Sefiddashti SE, Sari AA. Self-reportedhealth-related quality of life (HRQoL) and factors affecting HRQoL among individuals with health insurance in Iran. Epidimiol Health. 2016; 38: e2016046.

4. Theofilou P, Kapsalis F, Panagiotaki H. Greek version of MVQOLI - 15:Translation andc ultural adaptation. IJCS. 2012; 5: 289.

5. Zyoud SH, Daraghmeh DN, Mezyed DO, Khdeir RL, Sawafta MN, et al. Factors affecting quality of life in patients on haemodialysis: a cross-sectional study from Palestine. BMC Nephrology. 2016; 17: 44.

6. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment. 1988; 52: 30-41.

7. Michielsen HJ, De Vries J, VanHeck GL. Psychometric qualities of a brief self-rated fatigue measure the fatigue assessment scale. Journal of Psychosomatic Research. 2003; 54: 345-352.

8. Theofilou P, Aroni A, Ralli M, Gouzou M, Zyga S. Measuring health: Related Quality of Life in Hemodialysis Patients. Psychometric Properties of the Missoula-VITAS Quality of Life Index (MVQOLI-15) in Greece. Health Psychol Res. 2013; 1: p.e17.

9. Nugraha A, Rahmah GU, Bhudiaji P. Effect of Family Support Towards Elderly Hemodialysis Patients' Anxiety Level. Basic and Applied Nursing Research J ournal. 2020; 1: 20-24.

10. Tsiamis G, Alikari V, Fradelos E, Papapetrou S, Zyga S. Assessment of Quality of Life and Fatigue among Haemodialysis Patients. American Journal of Nursing Science. 2015; 4: 66-73.

11. Konstantakopoulou O, Kaitelidou D, Galanis P. Siskou O, Economou C. Using patient experience measures to evaluate the quality of medical and nursingcare in the newly established PHC units (TOMYs), in Greece. Social Cohesion and Development. 2020; 14: 49-63.

12. Economou C. Barriers and Facilitating Factors in Access to Health Services in Greece. Copenhagen: World Health Organization. 2015.

13. Theodoritsi A, Aravantinou ME, Gravani V, Bourtsi E, Vasilopoulou C, et al. Factors Associated with the Social Support of Hemodialysis Patients. Iran J Public Health. 2016; 45: 1261-1269.

14. Dąbrowska-Bender M, Dykowska G, Żuk W, Milewska M, Staniszewska A. The impact on quality of life of dialysis patients with renal insufficiency. Patient Prefer Adherence. 2018; 12: 577-583.

15. Almutary H, Bonner A, Douglas C. Which patients with chronic kidney disease have the greatest symptom burden? A comparative study of advanced CKD stage and dialysis modality. J Ren Care. 2016; 42: 73-82.

16. Jacobson J, Ju A, Baumgart A, Unruh M, O'Donoghue D, et al. Patient perspectives on the meaning and impact of fatigue in hemodialysis: a systematic review and thematic analysis of qualitative studies. Am J Kidney Dis. 2019; 74: 179-192.

17. Caplin B, Kumar S, Davenport A. Patients' perspective of haemodialysis-associated symptoms. Nephrol Dial Transplant. 2011; 26: 2656-2663.

18. Flythe JE, Dorough A, Narendra JH, Forfang D, Hartwell L, et al. Perspectives on symptom experiences and symptom reporting among individuals on hemodialysis. Nephrol Dial Transplant. 2018; 33: 1842-1852.

19. Ramkumar N, Beddhu S, Eggers P, Pappas LM, Cheung AK. Patient preferences for in-center intense hemodialysis. Hemodial Int. 2005; 9: 281-295.

20. Burrowes JD, Larive B, Cockram DB, Dwyer J, Kusek JW, et al. Effects of dietary intake, appetite, and eating habits on dialysis and non-dialysis treatment days in hemodialysis patients: cross-sectional results from the HEMO study. J Ren Nutr. 2003; 13: 191-198.