

The Effect of Sharing Experience via Social Networking on the General Health of Hemodialysis Patients: A Randomized Clinical Trial Study

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Abstract

Background: Patients undergoing hemodialysis often have poor general health. Sharing experiences via Social Networks may help patients with chronic illnesses. The present study aimed to determine the effects of sharing experiences via social networking on the general health of dialysis patients.

Materials and Methods: This randomized clinical trial was conducted at Al-Kindi and Imam Ali hospitals in Baghdad, Iraq, in 2021. A total of 72 hemodialysis patients were selected through the convenient sampling method and randomly divided into experimental and control groups. Both groups completed the demographic information and general health questionnaires. The experimental group received necessary training on using WhatsApp to share their experience, and the control group received routine care. Immediately after the intervention, the general health questionnaire was completed by two groups. Data were analyzed using SPSS software (version 25.0).

Results: There was no significant difference between the mean score of general health before the intervention in the two groups ($p > 0.05$). However, after intervention in the experimental group, the mean general health score instantly decreased from 35.2 ± 12.8 to 29.8 ± 8.4 ($p < 0.05$). The findings showed that patients who were young, employed, or had no underlying disease had a higher level of general health ($p < 0.05$).

Conclusion: Sharing experience via social networking were effective in reducing general health scores. There was a significant relationship between age, job status, underlying disease, and a higher level of general health. Therefore, sharing experiences via social networking can improve the general health level of these patients.

Key Words: General health, Hemodialysis, Iraq, Social networking, WhatsApp.

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1- INTRODUCTION

Hemodialysis (HD) is a medical treatment where the blood is removed from the body and run through a filter to remove waste products before returning to the body. This treatment is common for people experiencing kidney failure, as the kidneys normally perform this function. Depending on the patient and the situation, hemodialysis may be performed on an emergency or a long-term basis (1). This therapy is a time-intensive, expensive process and requires fluid and dietary restrictions. Also, long-term dialysis therapy can negatively affect patients through loss of freedom, increased dependence, disruption of family and social life, and reduced financial circumstances, resulting in detrimental consequences for the lifestyles of patients and their families (1, 2).

End-stage renal disease (ESRD) is the loss of renal function characterized by lower than 20 percent of the normal glomerular filtration rate (GFR). Approximately two-thirds of patients who eventually reach ESRD have progressive renal failure. The early manifestations are nausea, apathy, weakness, and fatigue. Signs of progress in uremic complications that occur later are frequent vomiting, restlessness, convulsion, pale and dry skin, Kussmaul pattern respiration, and deep coma. The ESRD requires dialysis, either peritoneal or hemodialysis (2).

However, most patients suffering from ESRD need hemodialysis two or three times a week, which can be a heavy burden for the patient and their caregivers. Additionally, they may suffer from functional and cognitive impairments (3). There are significant variations in the prevalence of ESRD (4). The number of worldwide patients undergoing hemodialysis in 2016 was 2,648,000, and 29,200 in Iran. There is a 30% increase in the global prevalence of ESRD, especially among diabetic patients. It is predicted that

by 2020, 1200 per one million people will have chronic kidney failure. In Iraq, the prevalence of diabetes and high blood pressure, which are major risk factors for ESRD, is significantly increased by approximately 10.4 and 40.4% (5). The prevalence of ESRD, its poor outcomes, and high costs have made it recognized as a major threat to public health, which requires prevention, early detection, and management not only by nephrologists but also by all medical and nursing staff and public health agencies (5). Therefore, every study conducted on the psychological and social problems of these patients is important (6). As kidney disease progresses to later stages, it becomes difficult to control and requires improvement of general health through the quality of life as well as survival (7).

At the same time, dialysis-induced symptoms, such as pain, sleep disturbance, depression, uncontrolled fluctuations in blood pressure, stomach pain, and poor disease outcomes, will reduce the quality of life (QOL). Patients suffering from Chronic Renal Disease (CRD) with deteriorating general health are often unable to keep up with their usual activities of daily life, such as sports, hobbies, social activities, and personal development (8). As this disease is difficult to deal with and long-term, efforts are necessary to improve patients' general health by raising the quality of life and survival (7). All studies related to psychosocial problems have wide-ranging implications for the patients' general health (6). Sharing experiences is an important strategy for creating a social environment for learning through sharing positive and negative personal experiences (9). Using social technologies for health communication creates various opportunities, such as managing health care via communication with others, feeling connected and supported, and learning from the health experiences of

other patients (10, 11). As was observed during the COVID-19 pandemic, social networking activities can help improve patients' overall health and quality of life through participation in sharing their stories and disease-related experiences on Social Networking Sites (SNS) such as WhatsApp, Facebook, and Instagram (12). These benefits, along with the relatively low costs, make social networking sites helpful for health awareness and social support by sharing activities (13). To the authors' knowledge, no study has been conducted on using social networks for sharing experiences among chronic renal disease patients. Therefore, this study aimed to determine the effects of sharing experiences via social networking on the general health of dialysis patients.

2- MATERIALS AND METHODS

2-1. Study Design and Population

The present study is a randomized clinical trial conducted at Al-Kindi and Imam Ali hospitals in Baghdad (Iraq) in 2021. The trial was approved by the Ethics Committee of Mashhad University of Medical Sciences in Mashhad, Iran. The convenient sampling method was used, and 72 patients with chronic renal failure were selected who were undergoing hemodialysis and had their first hemodialysis session at least two months ago (14). The sample size was 72 based on the pilot study and considering the drop in the samples. The samples were randomly allocated into two groups: intervention (33 patients), and control (36 patients). There was three-person sampling attrition.

2-2. Inclusion and Exclusion Criteria

The inclusion criteria were having no history of clinically diagnosed anxiety or depression problems, no participation in similar interventional studies, having an acceptable ability to communicate verbally, read, and write, having a smartphone with an Internet connection,

and having completed the informed consent form. The participants could leave the study if they did not want to cooperate at any stage of the study. Patients were excluded if they were treated with kidney transplantation during the study, failed to complete the intervention course for any reason, were reluctant to continue participating in the study, experienced an exacerbation of the disease or an unpleasant event, or were absent from the post-test.

2-3. Measuring tools

Data were collected using a demographic characteristics form and a general health questionnaire (GHQ-28). The demographic form consisted of personal and practical characteristics such as age, gender, marital status, level of education, occupational status, income level, type of social network, hemodialysis times, underlying diseases, type of underlying diseases, duration of dialysis, and duration of chronic kidney failure (15, 16). The GHQ-28 has 28 items and four subscales, each with seven questions. Items 1–7 are scales of physical symptoms, items 8–14 are of anxiety and sleep disorder symptoms, items 15–21 are symptoms of social functional failure, and items 22–28 are related to symptoms of depression. A score of zero indicates "never", 1 indicates "usually", 2 "more than usual", and 3 "much more than usual". A score of 6 for each scale and a total score of 22 and higher represent a disorder. A lower score indicates a higher level of general health.

2-4. Reliability and Validity

Goldberg and Williams reported a score of 0.95 for split-half reliability of the questionnaire (17). Also, a study by Chan reported the internal consistency using Cronbach's alpha as 0.93 (18). In the present study, the validity and reliability of the Arabic version of the GHQ questionnaire were assessed using CVI (0.98). The reliability evaluated with

Cronbach's alpha for the whole scale and subscales of physical symptoms, anxiety and insomnia symptoms, social dysfunction, and depression symptoms were 0.94, 0.85, 0.77, and 0.86, respectively (19).

2-5. Intervention

In the beginning, both groups completed the demographic information and the general health questionnaire. Next, the patients in the intervention group (n=33) received the necessary training on using WhatsApp and hours of experience sharing of illness problems and daily solutions on the WhatsApp social network. During the four weeks of the intervention, patients shared their daily experiences of illness, problems, and solutions on the WhatsApp social network. These problems were primarily related to nutrition, medication, rest, activity, and catheter care. One of these problems was discussed at the end of each week. For the control group (n=36), there was no interference, and they received routine care. Immediately after the intervention, the General Health Questionnaire was completed by the two groups.

2-6. Ethical Considerations

The study protocol was approved by the ethics committee of Mashhad University of Medical Sciences (Ethics code: IR.MUMS.NURSE.REC.1400.022).

Informed consent was obtained from all patients. This trial was registered in the Iranian Registry of Clinical Trials (IRCT20210304050575N1).

2-7. Data Analysis

The data were analyzed using descriptive (mean, standard deviation, and frequency distribution) and inferential (Chi-square test, two-way analysis of variance

(ANOVA), Mann-Whitney U, and independent *t*-test) statistics. Data analysis was performed by SPSS software version 25.0. A P-value less than 0.05 was considered statistically significant.

3- RESULTS

A total of 69 patients completed the study questionnaire (intervention group=33, control group=36). Three patients in the intervention group were excluded from the study due to their absence from the post-test. The Chi-square test, independent *t*-test, and Mann-Whitney test showed no significant differences between the two groups concerning the means, standard deviations (SD), and frequency of the demographic data, including age, gender, marital status, income level, type of social network, hemodialysis times, underlying diseases, type of underlying diseases, duration of dialysis, and duration of chronic kidney failure. It was indicated that the two groups were homogeneous in demographic variables and context (**Table 1**).

The mean and SD of the total general health score of the studied patients were 35.2 ± 12.8 in the intervention group and 36.9 ± 11.9 in the control group before the intervention ($p = 0.567$, Independent *t*-test), and 29.8 ± 8.4 in the intervention group and 37.0 ± 10.1 in the control group after the intervention ($p = 0.002$, Independent *t*-test). The total general health score of the patients after the intervention decreased compared to the before intervention ($p < 0.001$). A paired *t*-test for within-group comparison showed a significant difference in the intervention group ($p < 0.001$), and an insignificant difference in the control group ($p = 0.714$) (**Table 2**).

Table-1: General characteristics of intervention and control groups (n=69).

Variables		Group		Test Result
		Intervention Number (%)	Control Number (%)	
Gender	Male	19 (57.6)	23 (63.9)	p=0.772
	Female	14 (42.4)	13 (36.1)	
Level of education	Read & write	9 (27.3)	7 (19.4)	
	Elementary school graduate	15 (45.5)	10 (27.8)	
	Middle school graduate	3 (9.1)	6 (16.7)	
	High school graduate	3 (9.1)	8 (22.2)	
	Institute graduate	2 (6.1)	3 (8.3)	
	College graduate or above	1 (3.0)	2 (5.6)	
Marital status	Single	9 (27.3)	14 (38.9)	
	Married	20 (60.6)	20 (55.6)	
	Divorced	0 (0.0)	1 (2.8)	
	Widowed	4 (12.1)	1 (2.8)	
Occupational status	Employee	7 (21.2)	12 (33.3)	p>0.05
	Retired	2 (6.1)	3 (8.3)	
	Housewife	11 (33.3)	11 (30.6)	
	Unemployed	12 (36.4)	7 (19.4)	
	Other	1 (3.0)	3 (8.3)	
Income level	Less than enough	22 (66.7)	21 (58.3)	
	Enough	11 (33.3)	14 (38.9)	
	More than enough	0 (0.0)	1 (2.8)	
Type of social network	Facebook	18 (54.5)	17 (47.2)	
	WhatsApp	12 (36.4)	12 (33.3)	
	Instagram	2 (6.1)	7 (19.4)	
	Telegram	1 (3.0)	0 (0.0)	
Hemodialysis times	Once per week	2 (6.1)	2 (5.6)	p>0.05
	Twice per week	11 (33.3)	20 (55.6)	
	More than twice per week	20 (60.6)	14 (38.9)	
Underlying diseases	Yes	29 (87.9)	27 (75.0)	
	No	4 (12.1)	9 (25.0)	
Type of Underlying diseases	Diabetes	2 (6.9)	3 (11.1)	
	Stroke	1 (3.4)	0 (0.0)	
	High blood pressure	15 (51.7)	17 (63.0)	
	More than one	11 (37.9)	7 (25.9)	
Duration of dialysis		Mean \pm SD	Mean \pm SD	
		3.0 \pm 2.4	3.9 \pm 2.0	
Duration of chronic kidney failure		3.8 \pm 2.9	4.8 \pm 3.2	
Age, year		41.5 \pm 12.0	37.4 \pm 9.1	
Total	33 (100.0)	36 (100.0)		

SD: Standard deviation.

Table-2: Mean of a total score of the general health of the studied patients in intervention and control groups.

The total score of general health	Group		Between-group test results
	Intervention Mean \pm SD	Control Mean \pm SD	
Before intervention	35.2 \pm 12.8	36.9 \pm 11.9	t=-0.6, df=67.0 p=0.567 t-test
After intervention	29.8 \pm 8.4	37.0 \pm 10.1	t=-3.2, df=67.0 p=0.002 t-test
After intervention-before intervention	-5.4 \pm 6.1	0.1 \pm 2.3	Z=-5.2 p<0.001 Mann-Whitney U
Within-group test results	t=5.1, df=32.0 p<0.001 Paired t-test	t=-0.4, df=35.0 p=0.714 Paired t-test	

SD: Standard deviation, df: Degree of freedom.

A two-way analysis of variance was used to evaluate the effect of contextual and intervening variables on the total score of general health after the intervention in both groups. The results are shown in **Table 3**. The finding showed that the effect of age

(p = 0.011), employment status (p= 0.009), and underlying disease (p = 0.009) on the total score of general health after the intervention were significant. The effect of other variables, however, was not (p>0.05).

Table-3: The result of two-way analysis of variance of the effect of the group and some demographic and contextual variables on the total score of general health after the intervention.

Variables	Total (p)	Group (p)	Variable (p)	Interaction (p)
Gender	0.006	0.007	0.253	0.176
Age	0.001	<0.001	0.011	0.346
Level of education	0.031	0.070	0.182	0.245
Marital status	0.005	0.005	0.052	0.283
Occupational status	0.003	0.051	0.009	1.000
Income level	0.044	0.002	0.907	0.543
Duration of chronic kidney failure	0.015	0.003	0.578	0.387
Duration of dialysis	0.013	0.002	0.950	0.232
Social network usage	0.002	0.002	-	-
Type of social network	0.006	0.005	0.073	0.383
Hemodialysis times	0.073	0.108	0.760	0.828
Health insurance status	0.002	0.002	-	-
Underlying diseases	<0.001	0.024	0.009	0.414
Type of underlying diseases	0.027	0.002	0.821	0.675

4- DISCUSSION

This study aimed to determine the effects of sharing experiences via social networking on the general health of

patients undergoing hemodialysis. Intervention and control groups were homogeneous in age, gender, marital status, level of education, occupational status, income level, type of social network

used, hemodialysis times, underlying diseases, type of underlying diseases, duration of dialysis (15), and duration of chronic kidney failure (20). The results showed that the general health of patients in the experimental group increased significantly after the intervention, but no significant changes were observed in the control group. This was supported by the study of Salehi et al. (2014), which showed that participation in peer groups and exchange of experiences were beneficial for the overall health of patients undergoing dialysis, especially in terms of the mental dimension (21). Similar results were observed in a study on the perceived peer support and quality of life of Iranian hemodialysis patients. It emphasized that patients who participated in peer social groups are much better adapted to their health problems and less affected by the disease (22).

However, Nejad et al. found that mindfulness had a marginal effect on improving the general health of patients undergoing hemodialysis (23). Their finding is partially consistent with the results of this study, and the difference is caused by the type of intervention in the two studies. In the mentioned research, mindfulness training was performed, while the present research focused mostly on sharing experiences via social networking (namely, WhatsApp). On the whole, studies show that the involvement of patients with a wide range of complications and health problems and possible differences in their general health can be affected by their attitudes, environment, education, self-perception, and the type of chronic illness (24, 25).

The study of Hadi et al. (2008) showed that participants had a low general health score that is inconsistent with the present study (24). The reason for this inconsistency is the difference in the type of study and the questionnaires. Sharing experiences via social networking

improves the general health of patients undergoing hemodialysis by the patients learning to experience positive emotions and stop negative attitudes. Sharing experiences via social networking helps people raise their level of awareness, improve their energy and their general understanding of health, and thus plays an important role in regulating and improving general health. In the present study, the effect of contextual and intervening variables on the total score of general health after the intervention in both groups was evaluated. Findings showed that among the demographic factors, those who were younger, employed, and had no underlying disease ($p < 0.05$) had a more general health total score, individually.

But none of the other demographic variables had a significant effect on the general health total score after the intervention. The study by Moeini et al. showed no significant relationship between demographic characteristics such as age, sex, level of education, income, marriage, and employment status with the general health of the samples, which is not in agreement with the present study in the correlation with age and employment status (27). Inconsistent with the findings of the present study, Sharif and Vedad (2007) showed that some aspects of general health have a statistically significant correlation with demographic characteristics such as gender (26). However, they also showed no statistically significant relationship between general health and duration and the number of hemodialysis sessions (26).

4-1. Study Limitations

The limitations of this research include the use of the convenient sampling method and a questionnaire, which can affect the accurate assessment of information and should be considered by readers and researchers for further studies. This study was performed at Imam Ali (AS), and Al-Kindi hospitals in Baghdad (Iraq), so the

generalization of the findings should be made with caution.

5- CONCLUSION

The findings of the present study showed that sharing experiences via social networking has a favorable impact on the general health of patients undergoing hemodialysis. This finding can help the health care team in treating patients with chronic renal failure and maximizing their general health. Providing opportunities for patients to share their experiences can be an effective method to improve general health and the quality of life and reduce the length of hospital stay and costs for these patients.

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7- CONFLICT OF INTEREST: None.

8- REFERENCES

1. Kaptein, A.A., M. Scharloo, D.I. Helder. Representations of chronic illnesses, in the self-regulation of health and illness behaviour. 2012, Routledge. p. 111-32. ISBN: 9780203553220.
2. Mills KT, Xu Y, Zhang W, Bundy JD, Chen CS, Kelly TN, Chen J, He J. A systematic analysis of worldwide population-based data on the global burden of chronic kidney disease in 2010. *Kidney Int.* 2015 Nov;88(5):950-7. doi: 10.1038/ki.2015.230.
3. James, M.T., B.R. Hemmelgarn, M. Tonelli. Early recognition and prevention of chronic kidney disease. *The Lancet*, 2010; 375(9722): 1296-1309.
4. Schieppati, A. and G. Remuzzi. Chronic renal diseases as a public health problem: epidemiology, social, and economic implications. *Kidney International*, 2015; 68: S7-S10.
5. Levey AS, de Jong PE, Coresh J, El Nahas M, Astor BC, Matsushita K, Gansevoort RT, Kasiske BL, Eckardt KU. The definition, classification, and prognosis of chronic kidney disease: a KDIGO Controversies Conference report. *Kidney Int.* 2011 Jul;80(1):17-28. doi: 10.1038/ki.2010.483.
6. Leung, DK. Psychosocial aspects in renal patients. *Peritoneal dialysis international*, 2003. 23 (2_suppl): pp. 90-4.
7. Joshi, V.D., Quality of life in end stage renal disease patients. *World journal of nephrology*, 2014; 3(4): 308.
8. Dąbrowska-Bender M, Dykowska G, Żuk W, Milewska M, Staniszevska A. The impact on quality of life of dialysis patients with renal insufficiency. *Patient Prefer Adherence.* 2018 Apr 19;12:577-583. doi: 10.2147/PPA.S156356.
9. Rogan A, McCarthy K, McGregor G, Hamborg T, Evans G, Hewins S, Aldridge N, Fletcher S, Krishnan N, Higgins R, Zehnder D, Ting SM. Quality of life measures predict cardiovascular health and physical performance in chronic renal failure patients. *PLoS One.* 2017 Sep 14;12(9):e0183926. doi: 10.1371/journal.pone.0183926. Erratum in: *PLoS One.* 2017 Dec 5;12 (12):e0189382.
10. Kordzadeh, Warren J. Communicating personal health information in virtual health communities: A theoretical framework in 2014. 47th Hawaii International Conference on System Sciences (HICSS), 2014: 6 - 9 Jan. 2014, Waikoloa, Hawaii.
11. Merolli, M., K. Gray, F. Martin-Sanchez. Health outcomes and related effects of using social media in chronic disease management: a literature review and analysis of affordances. *Journal of biomedical informatics*, 2013; 46(6): 957-69.
12. Maurer, C, Wiegmann R. Effectiveness of advertising on social network sites: a case study on Facebook. *Information and Communication Technologies in Tourism*

2011 - Proceedings of the International Conference in Innsbruck, Austria, January 26-28, 2011. doi:10.1007/978-3-7091-0503-0_39.

13. Houston, T.K., L.A. Cooper, and D.E. Ford, Internet support groups for depression: a 1-year prospective cohort study. *American Journal of Psychiatry*, 2002; 159(12): 2062-68.

14. Munoz Mendoza J, Sun S, Chertow GM, Moran J, Doss S, Schiller B. Dialysate sodium and sodium gradient in maintenance hemodialysis: a neglected sodium restriction approach? *Nephrol Dial Transplant*. 2011 Apr;26(4):1281-7. doi: 10.1093/ndt/gfq807. Epub 2011 Feb 8. PMID: 21303968; PMCID: PMC3108351.

15. Fukuroku K, N.Y., Taneda Y, Kobayashi S, Gayle AA. Does infrared visualization improve selection of venipuncture sites for indwelling needle at the forearm in second-year nursing students? *Nurse Educ Pract* [Internet]. 2016;18:1-9. Available from: <http://dx.doi.org/10.1016/j.nepr.2016.02.005>.

16. Johnson, S. A. Dwyer, Patient perceived barriers to treatment of depression and anxiety in hemodialysis patients. *Clinical nephrology*, 2018; 69(3): 201-6.

17. Goldberg DP, Williams P. A User's Guide to the General Health Questionnaire. Windsor: nferNelson, 1988.

18. Chan, D.W. The Chinese version of the General Health Questionnaire: does language make a difference? *Psychological medicine*, 2018; 15(1): 147-55.

19. Taghavi, S. The Normalization of General Health Questionnaire for Shiraz University Students (GHQ-28). *Clinical Psychology and Personality*, 2008; 6(1): 1-12.

20. Schimmel SR. *Cancer Talk: Voices of Hope and Endurance from The Group Room, the World's Largest Cancer Support Group*: Broadway Books; 2010.

21. Salehi, K. and Y. Mahmoodifar, Relationship between social support and depression, anxiety in Hemodialysis patients. *Iranian Journal of Nursing Research*, 2014; 9(1): 33-9.

22. Rambod, M. and F. Rafii, Perceived social support and quality of life in Iranian hemodialysis patients. *Journal of Nursing Scholarship*, 2020; 42(3): 242-49.

23. Moosavi Nejad M, Shahgholian N, Samouei R. The effect of mindfulness program on general health of patients undergoing hemodialysis. *J Educ Health Promot*. 2018 Jun 12;7:74. doi: 10.4103/jehp.jehp_132_17. PMID: 29963567; PMCID: PMC6009148.

24. Hadi, N., Rahmani Z, Montazeri A. Quality of life related with health in patients with chronic renal failure undergoing hemodialysis. *JRMS*, 2010; 9(4): 349-54.

25. Masoudi-Alavi, N., Sharifi K, Ali-Akbarzadeh Z. Health status and activities of daily living in hemodialysis and transplant patients. *Iran Journal of Nursing*, 2011; 23(68): 47-53.

26. Sharif, F, Vedad F. The relationship between mental health and quality of life of hemodialysis patients referred to hospitals affiliated to Shiraz University of Medical Sciences. *Iran Journal of Nursing*, 2017; 20(51): 61-9.

27. Moeini V, Shiri P, Akhlaghi M. Study Quality of life and related factors in hemodialysis patients referred to teaching hospitals in Zanjan. *JGN*. 2015; 1(4):49-59.