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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 experience poor general health. Sharing personal experiences through social networks can potentially benefit individuals with chronic conditions. This study investigates how sharing experiences via social networking affects 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 using the convenient sampling method and randomly divided into experimental and control groups. Both groups completed demographic information forms and general health questionnaires. The experimental group received training on using WhatsApp to share their experiences, while the control group received routine care. Immediately after the intervention, both groups completed the general health questionnaire again. Data analysis was performed using SPSS software (version 25.0).

Results: There was no significant difference in the mean general health score between the two groups before the intervention ($p > 0.05$). However, after the intervention, the experimental group showed a significant decrease in their mean general health score from 35.2 ± 12.8 to 29.8 ± 8.4 ($p < 0.05$). The findings indicated that younger patients, those who were employed, or those without underlying diseases had higher levels of general health ($p < 0.05$).

Conclusion*:* Sharing experiences via social networking (WhatsApp) may positively impact the general health of hemodialysis patients, as the study found a significant decrease in general health scores in the intervention group. However, limitations such as convenience sampling and the specific study setting should be considered.

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

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1- INTRODUCTION

Hemodialysis (HD) is a medical treatment in which blood is removed from the body, filtered to remove waste products, and then returned. This treatment is commonly used for individuals experiencing kidney failure, as it replicates the function normally performed by healthy kidneys. Depending on the patient and situation, hemodialysis may be administered on an emergency or long-term basis (1). The therapy is time-intensive and expensive, requiring strict fluid and dietary restrictions. Additionally, long-term dialysis can have negative impacts on patients by limiting their freedom, increasing dependence, disrupting family and social life, and straining financial resources—ultimately leading to detrimental lifestyle consequences for both patients and their families (1, 2).

End-stage renal disease (ESRD) is characterized by a significant loss of renal function, typically defined as a glomerular filtration rate (GFR) below 20% of normal. Approximately two-thirds of patients who progress to ESRD have experienced gradual renal failure. Early manifestations often include symptoms such as nausea, apathy, weakness, and fatigue. As uremic complications advance, later signs may include frequent vomiting, restlessness, convulsions, pale and dry skin, Kussmaul breathing pattern (a deep and labored breathing), and potentially progressing to deep coma. Treatment for ESRD typically involves dialysis—either peritoneal dialysis or hemodialysis (2).

However, most patients suffering from end-stage renal disease (ESRD) require hemodialysis two or three times a week, which can be a significant burden for both the patient and their caregivers. Additionally, they may experience functional and cognitive impairments (3). There are substantial variations in the prevalence of ESRD globally (4). In 2016, approximately 2,648,000 patients worldwide underwent hemodialysis, with 29,200 in Iran alone. The global prevalence of ESRD has increased by about 30%, particularly among diabetic patients. It was projected that by 2020, there would be about 1,200 cases of chronic kidney failure per million people. In Iraq specifically, there has been a notable rise in diabetes and hypertension—major risk factors for ESRD—by approximately 10.4% and 40.4%, respectively (5). The high prevalence of ESRD combined with its poor outcomes and substantial costs have led to its recognition as a major public health threat requiring comprehensive prevention strategies involving not only nephrologists but also all healthcare professionals and public health agencies (5). Consequently, every study addressing the psychological and social challenges faced by these patients is crucially important (6). As kidney disease progresses to later stages, it becomes increasingly difficult to manage effectively; thus improving general health through enhanced quality of life alongside survival becomes essential (7).

At the same time, dialysis-induced symptoms such as pain, sleep disturbances, depression, uncontrolled blood pressure fluctuations, stomach pain, and poor disease outcomes can significantly reduce quality of life (QOL). Patients with chronic renal disease (CRD) often experience deteriorating general health and may struggle to maintain their usual daily activities like sports, hobbies, social engagements, and personal development (8). Given the challenging nature of this long-term condition, efforts are necessary to enhance patients' general health by improving both quality of life and survival prospects (7).

Studies focusing on psychosocial challenges have broad implications for patients' overall well-being (6). Sharing experiences is an important strategy for

creating a supportive social environment where individuals can learn from others' positive and negative experiences (9). Utilizing social technologies for health communication offers various benefits such as managing healthcare through interactions with others, feeling connected and supported, and learning from other patients' health experiences (10, 11). The COVID-19 pandemic highlighted how social networking activities can improve patients' overall health and quality of life by facilitating the sharing of personal stories and disease-related experiences on platforms like WhatsApp, Facebook, and Instagram (12). These benefits combined with relatively low costs make social networking sites valuable tools for promoting health awareness and providing social support through shared activities (13). To our knowledge no previous study has explored using social networks for experience sharing among chronic renal disease patients. Therefore this study aimed to investigate how sharing experiences via social networking affects the general health of dialysis patients.

2- MATERIALS AND METHODS

2-1. Study Design and Population

This 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. Participants were selected using the convenient sampling method; 72 patients with chronic renal failure undergoing hemodialysis were included if they had completed their first hemodialysis session at least two months prior (14). The sample size was determined based on a pilot study and anticipated sample attrition. The participants were randomly allocated into two groups: an intervention group with 33 patients and a control group with 36 patients. There was an attrition of three participants during the study.

2-2. Inclusion and Exclusion Criteria

- Inclusion criteria: No history of clinically diagnosed anxiety or depression, no participation in similar interventional studies, acceptable verbal, reading, and writing communication skills, access to a smartphone with internet, and completion of informed consent. Participants were free to withdraw from the study at any time if they no longer wished to participate.
- Exclusion criteria: Receiving kidney transplantation during the study, failure to complete the intervention, unwillingness to continue participation, disease exacerbation or adverse event, or absence from the post-test.

2-3. Measuring Tools

Data were collected using a demographic characteristics form and the General Health Questionnaire (GHQ-28). The demographic form gathered personal and practical characteristics, including age, gender, marital status, education level, occupational status, income level, social network type, hemodialysis frequency, underlying diseases, types of underlying diseases, dialysis duration, and chronic kidney failure duration (15, 16). The GHQ-28 consists of 28 items across four subscales, each containing seven questions: physical symptoms (items 1-7), anxiety and sleep disorder symptoms (items 8-14), social dysfunction symptoms (items 15-21), and depression symptoms (items 22-28). Response options range from 0 ("never") to 3 ("much more than usual"). A score of 6 or higher on each subscale, or a total score of 22 or higher, indicates a potential disorder, with lower scores reflecting better general health.

2-4. Reliability and Validity

Goldberg and Williams reported a split-half reliability score of 0.95 for the questionnaire (17). Additionally, Chan reported an internal consistency of 0.93 using Cronbach's alpha (18). In the current study, the validity of the Arabic version of the GHQ questionnaire was assessed using the Content Validity Index (CVI), resulting in a score of 0.98. Reliability, as measured by Cronbach's alpha, was 0.94 for the overall scale and 0.85, 0.77, and 0.86 for the physical symptoms, anxiety and insomnia symptoms, social dysfunction, and depression symptoms subscales, respectively (19).

2-5. Intervention

At the outset, both the intervention and control groups completed the demographic information form and the General Health Questionnaire. Following this, the intervention group (n=33) received training on using WhatsApp and participated in facilitated online discussions about illness-related problems and daily coping strategies via the WhatsApp social network. Over the four-week intervention period, participants in the intervention group shared their daily experiences with illness, problems, and solutions on WhatsApp, primarily focusing on nutrition, medication, rest, activity, and catheter care. One key problem area was discussed in detail at the end of each week. The control group (n=36) received routine care without any intervention. Immediately following the four-week period, both groups completed the General Health Questionnaire again.

2-6. Ethical Considerations

This study, conducted as part of a master's thesis in nursing, received approval from the Ethics Committee of Mashhad University of Medical Sciences (IR.MUMS.NURSE.REC.1400.022). The research adhered to global ethical standards and COPE (Committee on Publication Ethics) guidelines for protecting vulnerable groups and individuals in research (20). This included alignment with the ethical principles outlined in the World Medical Association (WMA) Declaration of Helsinki, and the Belmont Report (21, 22). Beneficence was prioritized by maximizing potential benefits and minimizing potential harms through clearly defined exclusion criteria and the assessment of participants' communication skills. All participants provided written informed consent after receiving comprehensive information about the research purpose, ensuring their voluntary participation and the right to withdraw at any point without consequence or impact on their care. The principle of justice was applied by focusing on individuals with chronic renal failure undergoing hemodialysis, aiming to ensure equitable distribution of research burdens and benefits among participants. Throughout the study, the first author was accessible via phone to promptly address any participant questions or concerns. Furthermore, upon study completion, both the intervention and control groups received training to ensure equal access to the knowledge and insights gained from the research.

2-7. Data Analysis

Data were analyzed using descriptive statistics (mean, standard deviation, and frequency distribution) and inferential statistics (Chi-square test, two-way analysis of variance [ANOVA], Mann-Whitney U test, and independent t-test). Statistical analysis was performed using 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 (intervention group = 33, control group = 36). Three patients initially assigned to the intervention group were excluded due to absence from the post-test.

Chi-square tests, independent t-tests, and Mann-Whitney U tests revealed no significant differences between the two groups in terms of demographic data, including age, gender, marital status, income level, social network type, hemodialysis frequency, underlying diseases, type of underlying diseases, dialysis duration, and duration of chronic kidney failure. This indicates that the two groups were homogeneous with respect to these demographic variables at baseline (**Table 1**). Before the intervention, the mean ± SD of the total general health score was 35.2 ± 12.8 in the intervention group and 36.9 ± 11.9 in the control group (p = 0.567, independent t-test). After the intervention, these scores were 29.8 ± 8.4 in the intervention group and 37.0 ± 10.1 in the control group (p = 0.002, independent t-test). The intervention group's total general health score significantly decreased after the intervention compared to before (p<0.001). Within-group comparisons using paired t-tests showed a significant difference in the intervention group (p<0.001) and no significant difference in the control group (p = 0.714) (**Table 2**).

Table-1: General Characteristics of Participants (n=69).

Variables		Group		Test Result
		Intervention	Control	
		Number (%)	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)	
	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)	p>0.05
	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)	
	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)
	Hypertension	15 (51.7)	17 (63.0)
	More than one	11 (37.9)	7 (25.9)
Duration of dialysis		Mean ± SD	Mean ± SD
		3.0 ± 2.4	3.9 ± 2.0
Duration of chronic kidney failure		3.8 ± 2.9	4.8 ± 3.2
Age, year		41.5 ± 12.0	37.4 ± 9.1
Total	33 (100.0)	36 (100.0)	

SD: Standard deviation.

Table-2: Mean Total General Health Scores for Intervention and Control Groups.

The total score of general health	Group		Between-group test
	Intervention	Control	
	Mean ± SD	Mean ± SD	
Before intervention	35.2 ± 12.8	36.9 ± 11.9	t=-0.6, df=67.0 p=0.567 t-test
After intervention	29.8 ± 8.4	37.0 ± 10.1	t=-3.2, df=67.0 p=0.002 t-test
After intervention-before intervention	-5.4 ± 6.1	0.1 ± 2.3	Z=-5.2 p<0.001 Mann–Whitney U
Within-group test	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 (ANOVA) was used to evaluate the effect of contextual and intervening variables on the total general health score after the intervention in both groups (**Table 3**). The results indicated that age (p = 0.011), employment status (p = 0.009), and underlying disease (p = 0.009) had a significant effect on the total general health score after the intervention. However, the effect of other variables was not statistically significant (p > 0.05).

Table-3: Effects of Group and Demographic Variables on Post-Intervention General Health Score (Two-Way ANOVA).

Variables	Total model (p-value)	Group effect (p-value)	Variable effect (p-value)	Interaction effect (p-value)
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 frequency	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 experience sharing via social networking on the general health of patients undergoing hemodialysis. At baseline, the intervention and control groups were homogeneous in terms of age, gender, marital status, education level, occupational status, income level, social network type, hemodialysis frequency, underlying diseases, type of underlying diseases, dialysis duration (15), and chronic kidney failure duration (23). The results demonstrated a significant improvement in the general health of patients in the intervention group after the intervention, while no significant changes were observed in the control group. This finding aligns with research indicating that social relationships are important determinants of health-related outcomes for patients with chronic conditions. Salehi et al. (2014) similarly found that participation in peer support groups and the exchange of experiences positively impacted the overall health of dialysis patients, particularly in the mental health domain (24). A study on perceived peer support and quality of life among Iranian hemodialysis patients also highlighted that patients actively involved in peer social groups demonstrated better adaptation to their health challenges and experienced a reduced impact from their disease (25). These findings underscore the potential of hemodialysis clinics to facilitate the formation of social networks among patients, which, in turn, can influence health behaviors and attitudes.

However, Nejad et al. (2018) found that mindfulness training had only a marginal effect on improving the general health of patients undergoing hemodialysis (26). While their findings are partially consistent with the present study, the limited effect they observed may be attributed to the differing nature of the interventions. While Nejad et al. focused on mindfulness training, the current study emphasized experience sharing via social networking (specifically, WhatsApp). This is further supported by observed improvements to overall health and quality of life through participation in sharing stories and disease-related experiences on social networking sites. Overall, research suggests that patients with various complications and health concerns may experience differences in their general health due to factors such as attitudes, environment, education, self-perception, and the nature of their chronic illness (27, 28).

In contrast to the present study's findings, Hadi et al. (2008) reported a low general health score among their participants (26). This discrepancy could stem from variations in study design, the specific questionnaires used, and the characteristics of the study populations. Experience sharing through social networking appears to improve the general health of patients undergoing hemodialysis by facilitating the development of positive emotions and the reduction of negative attitudes. These interactions can raise awareness, boost energy levels, and enhance overall health understanding, thereby playing a vital role in regulating and improving general health.

In the current study, the impact of contextual and intervening variables on the total general health score after the intervention was evaluated in both groups. The findings indicated that, among the

demographic factors examined, younger age, employment status, and the absence of underlying diseases were significantly associated with higher total general health scores ($p < 0.05$). None of the other demographic variables assessed had a significant effect on the total general health score post-intervention.

Moeini et al. (29) reported no significant relationship between demographic characteristics like age, sex, education level, income, marital status, and employment status and the general health of participants, a finding that contrasts with the present study's results regarding age and employment status. This is particularly interesting, as one study described differences in social networks within a new hemodialysis clinic and models the association between social network participation and kidney transplantation. Sharif and Vedad (30) found some aspects of general health to be statistically significantly correlated with demographic characteristics such as gender, but they also reported no significant relationship between general health and the duration or number of hemodialysis sessions. The mixed findings highlight the complex interplay of factors influencing general health in hemodialysis patients and suggest that certain demographic factors may be more salient in some populations or contexts than others. Further research is needed to investigate these relationships and tailor interventions to specific patient needs and characteristics.

4-1. Study Limitations

This research has limitations. The use of convenience sampling may limit the generalizability of the findings, as the sample may not be representative of all hemodialysis patients. The reliance on a questionnaire could also introduce biases. Furthermore, the study was conducted in two hospitals in Baghdad, Iraq, so caution should be exercised when generalizing the results to other settings. Future studies should consider using more robust sampling methods and diverse data collection techniques.

5- CONCLUSION

In conclusion, this study suggests that experience sharing via social networking (WhatsApp) may positively impact the general health of hemodialysis patients. The intervention group showed a significant decrease in general health scores, indicating potential benefits. Younger age, employment, and the absence of underlying diseases were associated with higher general health. Providing experience-sharing opportunities could improve general health and quality of life. However, limitations like convenience sampling and the study setting exist. Further research is needed to confirm these findings and explore how social networking can improve health outcomes for hemodialysis patients.

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7- CONFLICT OF INTEREST: None.

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