Self-efficacy among patients with hemodialysis during the COVID-19 pandemic

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ABSTRACT
Patients with hemodialysis face various problems with self-care behavior. Therefore, these patients need to control and manage adherence to enhance self-care, especially during the COVID-19 pandemic, which has particularly high morbidity in the elderly and co-morbid peoples. Self-efficacy was identified as a number of psychological factors that improve adherence and treatment outcomes among hemodialysis patients. This study aimed to investigate self-efficacy among patients with hemodialysis during the COVID-19 pandemic. A comparative descriptive research design was used to conduct the study. A convenience sample of 95 hemodialysis patients (male and females) was selected from Port-Said city, Egypt, and 115 hemodialysis patients (male and females) were selected from Saudi Arabia. Data collection included a structured interview with three parts assessing socio-demographic characteristics, anthropometric measurements, and self-efficacy. This study revealed a statistically significant difference between Egyptian and Saudi hemodialysis patients, mainly in the main score and levels of self-efficacy (p=0.001). There is a significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Egyptian hemodialysis patients in terms of sex, age, marital status, work, and level of education.

KEYWORDS: self-efficacy, patients, hemodialysis, comparative study.

ABBREVIATIONS: QOL – Quality of life; HD – Hemodialysis; ESKD – End-stage kidney diseases; DM – Diabetes Mellitus; KSA – Kingdom of Saudi Arabia; HRQOL – Health-related quality of life.

INTRODUCTION
Hemodialysis is the most common treatment for advanced and permanent kidney failure. Nowadays, a large number of people suffer from kidney disease and have multiple problems in terms of medical and treatment costs in health organizations all over the world [1]. COVID-19 is a major human threat that has become a pandemic; this new coronavirus has particularly high morbidity in the elderly and co-morbid people. The spread of the virus has increased, accompanied by widespread anxiety, fear, and uncertainty. Patients undergoing hemodialysis combine an inherent fragility and widespread problems of co-morbidities, and the specific setting in which many patients are treated frequently are dialysis units [2, 3].

Moreover, there is a relationship between fear and commitment shaped by self-efficacy, with higher levels of self-efficacy predicting greater commitment regardless of fear levels [4]. As a result, recognizing stressors, self-efficacy, and coping strategies among hemodialysis patients may help nurses and health care providers clearly understand patients’ conditions [5]. Hemodialysis patients face various issues in self-care behavior and need to control and manage adherence to enhance their self-care. Self-efficacy was described as a number of psychological factors that improve adherence and treatment outcomes among hemodialysis patients [6]. Self-care is a vital component of managing chronic disease, and poor self-care of patients receiving dialysis is associated with an increased risk of death and hospitalization [7]. Hemodialysis can reduce patients’ self-efficacy, affecting their confidence in managing their environment and life events. In addition, patients undergoing hemodialysis are more prone to psychological problems such as depression and low self-efficacy, and patients with depression are more likely to have low self-efficacy [8].

Furthermore, dealing with COVID-19 is a major risk factor for mental distress not only among patients but also among health
workers [9]. There is increasing appreciation that self-efficacy of self-care in chronically ill patients is connected with improved quality of life (QOL). So, quality of life and self-efficacy can play a significant role in chronic kidney disease and treatment results [10, 11]. For example, spiritual therapy can be utilized as a successful intervention to improve spiritual well-being, self-esteem, and self-efficacy in hemodialysis patients [12]. Therefore, self-efficacy is an important issue to assess, and it is imperative to have protective procedures in place to plan preventive and protective strategies for future pandemics.

Furthermore, individual efficacy in minimizing negative emotions and ideas may be a stress-reduction approach [9]. COVID-19 has spread swiftly and widely since its outbreak in December 2019, putting the population under much psychological strain. Patients receiving hemodialysis (HD) experienced more severe trauma-related stress symptoms. When major public health events occur, dialysis patients, particularly HD patients, should receive rigorous psychiatric evaluation and adequate psychological support [13]. Global hemodialysis (HD) addresses the most common type of renal substitution treatment. Many examinations showed a solid connection between HD treatment and clinical results. The study was performed on 100 patients in the Hemodialysis Unit at Tanta College Medical Clinic, Egypt. Information was collected to investigate factors that affected hemodialysis as clinical factors, dialysis, lab, and radiological information, and uncovered lacking HD in 60% of cases [14].

The prevalence of end-stage kidney diseases (ESKD) on regular hemodialysis in Menoufia governorate in Egypt is gradually increasing from what has been previously reported, especially among elderly patients, with high blood pressure and diabetes mellitus (DM) being the most common causes of ESKD [15].

Furthermore, the conceptual framework highlighting that health promotion during lifestyle enhancement may be a vital subject material has received significant attention from the scientific community worldwide. The Pender model focuses on three areas of health promotion: individual characteristics and experiences, perception, specific behavioral effects, and behavioral outcomes [16]. Therefore, this study aimed to explore self-efficacy among patients with hemodialysis during the COVID-19 pandemic by assessing self-efficacy and the relationship with socio-demographic characteristics.

MATERIAL AND METHODS

A comparative descriptive research design was used to conduct the current study. The study included adult males and females and was conducted in the renal dialysis units at Eldadamon Hospital, Al Salam General Hospital, and the assigned places for hemodialysis in Port-Saïd City, Egypt, and Aljadaani Hospital (KSA), from March 2021 to August 2021.

We included a convenience sample of all available patients undergoing hemodialysis during data collection. Patients were selected according to pre-established sample selection criteria. Patients who fulfilled the selection criteria were asked to participate in the study. We selected 95 hemodialysis patients (males and females) from Port-Saïd, Egypt, and 115 hemodialysis patients (male and female) from Saudi Arabia.

Data collection

An Arabic structured interview questionnaire was developed by the researcher after an extensive literature review [17], intended to measure self-efficacy among hemodialysis patients. The questionnaire consisted of 3 parts: socio-demographics (age, occupation etc.), anthropometric measurements (weight and height), and a self-efficacy assessment sheet which included 19 adapted self-efficacy items used to assess self-efficacy among hemodialysis patients. Items were scored on a Likert scale ranging from low (<50%), moderate (50–75%), and high (≥75%). The reliability was assessed using Cronbach alpha test=0.094.

Statistical analysis

The data was analyzed using the IBM SPSS version 20.0 software package. The qualitative data were expressed as percentages and numbers. Kolmogorov-Smirnov test was used to check the normality of distribution. The quantitative data were expressed by the range of the minimum and maximum, the mean, and the standard deviation. The Chi-square test was used for categorical variables to compare the different groups. Fisher's Exact or Monte Carlo correction for Chi-square correction was used when more than 20% of cells expected the number to be less than 5. Mann Whitney was used for qualitative variables distributed abnormally and to compare the two study groups. Statistical significance was considered at P-value<0.05 and highly significant at P-value<0.00.

RESULTS

Table 1 shows a significant difference between dialysis patients in Egypt and Saudi Arabia regarding socio-demographic items related to gender, marital status, residence, job, income, and educational level (p=0.039, 0.001, 0.009, respectively). There was a significant difference between dialysis patients in Egypt and Saudi Arabia regarding medical history related to the duration of hemodialysis, weekly dialysis time, and other diseases (p=0.001) (Table 2). Furthermore, there was a significant difference in the anthropometric measurements of height (p=0.001) between Egyptian and Saudi hemodialysis patients (Table 3). In addition, there was a significant difference in the main score and levels of self-efficacy (p=0.001) between Egyptian and Saudi hemodialysis patients (Table 4).

Table 5 shows a significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Egyptian hemodialysis patients, mainly in terms of gender, age, marital status, job, and level of education (p=0.041, 0.001, 0.025, 0.001, 0.005). In contrast, there was no significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Saudi hemodialysis patients.

Finally, there was a significant relationship between chronic disease self-efficacy and medical history among Egyptian hemodialysis patients, mainly in items of the duration of dialysis and weekly dialysis time (p=0.001, 0.018) (Table 6). However, among Saudi hemodialysis patients, there was a significant relationship only in terms of the duration of dialysis (p=0.046).

DISCUSSION

Hemodialysis can lead to significant changes in the physical and psychological status, daily living activities, and marital and social life status. However, assessing health-related quality of life (HRQOL) helps plan individual treatment strategies and determines the effectiveness and quality of medical and social
Regarding socio-demographic characteristics of the studied patients (Table 1), our study showed a significant difference between Egyptian and Saudi dialysis patients mainly in socio-demographic items related to gender, marital status, residence, job, income, and educational level. In what concerns hemodialysis patients and medical history (Table 2), the study revealed a significant difference between Egyptian and Saudi patients with hemodialysis, mainly in medical history items related to the duration of hemodialysis, weekly dialysis time, and other diseases with a family history of renal failure.

This finding agrees with another study from Egypt [18], which highlighted the primary essential clinical disorders affecting QOL that indirectly affected patients' self-efficacy: hepatitis C virus infection, anemia, DM, and sleep disturbances. However, increasing patients' education about hemodialysis and their care providers regarding problems associated with hemodialysis treatment is very important to decrease the patients' problems and improve their self-efficacy and QOL. The current study showed a significant difference between Egyptian and Saudi hemodialysis patients only in terms of height. This finding agrees with another study [19] that revealed the importance of attention to height differences in clinical and laboratory characteristics that subsist in Egyptian HD patients and should be considered when developing treatment and care guidelines to ensemble the gender-related variations.

Regarding the chronic disease self-efficacy scale, there was a significant difference between Egyptian and Saudi hemodialysis patients, mainly in the main score and levels of self-efficacy. These findings support other studies from Egypt [20] that highlighted the importance of patients' level of self-efficacy, self-care

table 1. comparison between samples according to socio-demographic data (n=210).

| Socio-demographic data      | Egypt (n=95) | Saudi (n=115) | χ²   | p   |
|-----------------------------|-------------|--------------|------|-----|
| Sex                         |             |              |      |     |
| Male                        | 46          | 72           | 4.254* | 0.039* |
| Female                      | 49          | 43           |      |     |
| Age (years)                 |             |              |      |     |
| 20–30                       | 8           | 9            |      |     |
| 21–40                       | 12          | 26           |      |     |
| 41–50                       | 34          | 47           |      |     |
| Above 51                    | 41          | 33           |      |     |
| Marital Status              |             |              |      |     |
| Married                     | 11          | 54           | 40.020* | <0.001* |
| Divorced                    | 56          | 44           |      |     |
| Absolute                    | 8           | 12           |      |     |
| Widowed                     | 20          | 5            |      |     |
| Resides                     |             |              |      |     |
| The wife                    | 48          | 18           | 30.069* | <0.001* |
| Sons                        | 17          | 28           |      |     |
| Relatives                   | 13          | 29           |      |     |
| Alone                       | 17          | 40           |      |     |
| Job                         |             |              |      |     |
| Does not work               | 31          | 26           | 34.296* | <0.001* |
| Works                       | 42          | 88           |      |     |
| Pension                     | 22          | 1            |      |     |
| Income level                |             |              |      |     |
| Enough                      | 30          | 72           | 20.053* | <0.001* |
| Not enough                  | 65          | 43           |      |     |
| Educational level           |             |              |      |     |
| Illiterate                  | 9           | 15           |      |     |
| Primary education           | 11          | 12           |      |     |
| Intermediate education      | 17          | 42           |      |     |
| High school education       | 39          | 24           |      |     |
| University education        | 15          | 20           |      |     |
| Postgraduate                | 4           | 2            |      |     |

χ² – Chi-square test; * – Statistically significant at p≤0.05.
Table 2. Comparison between the two samples according to medical history (n=210).

| Items                                           | Egypt (n=95) | Saudi (n=115) | \( \chi^2 \) | p     |
|------------------------------------------------|--------------|---------------|-------------|-------|
| Since when do you suffer from kidney failure?  |              |               |             |       |
| less than two years                           | 26           | 69            | 25.235*     | <0.001*|
| 2–5 years old                                 | 34           | 29            |             |       |
| More than 5 years                             | 34           | 16            |             |       |
| I do not remember                             | 1            | 1             |             |       |
| How many times do you dialyse per week?       |              |               | 33.531      | <0.001*|
| Once                                          | 3            | 0             |             |       |
| Twice                                         | 50           | 64            |             |       |
| Three times                                    | 42           | 28            |             |       |
| Irregular (as per doctor’s orders)            | 0            | 23            |             |       |
| Do you have anyone in your family who has kidney failure? | 41   | 90            | 34.195*     | <0.001*|
| Yes                                           | 40           | 25            |             |       |
| I do not know                                  | 14           | 0             |             |       |
| Do you have any other of the following diseases? | 51        | 0             | 81.539*     | <0.001*|
| Diabetes Mellitus                              |              |               |             |       |
| Hypertension                                   | 80           | 0             | 156.437*    | <0.001*|
| Cancer                                         | 6            | 0             | 7.477*      | <0.001*|
| Depression                                     | 10           | 2             | 9.654*      | <0.001*|
| Deep vein thrombosis                           | 14           | 3             | 14.051*     | <0.001*|
| Heart disease                                  | 31           | 12            | 20.029*     | <0.001*|
| Heart attack                                   | 22           | 10            | 12.215*     | <0.001*|
| Coronary artery disease                        | 59           | 3             | 103.627*    | <0.001*|
| Systemic Lupus                                 | 4            | 4             | 3.321       | <0.001*|
| Rheumatic heart diseases                       | 4            | 4             | 9.220*      | <0.001*|
| Cholesterol increase                           | 61           | 21            | 61.649*     | <0.001*|
| Chest crunch                                   | 12           | 9             | 10.801*     | <0.001*|
| Tuberculosis                                   | 12           | 10            | 10.264*     | <0.001*|
| Osteoporosis                                   | 32           | 2             | 51.387*     | <0.001*|
| Cataract                                       | 16           | 14            | 12.054*     | <0.001*|
| Glaucoma                                       | 10           | 7             | 10.791*     | <0.001*|
| Stomach ulcer                                  | 14           | 13            | 9.929*      | <0.001*|

\( \chi^2 \) – Chi-square test; MC – Monte Carlo; FE – Fisher Exact; * – Statistically significant at \( p \leq 0.05 \).

Table 3. Comparison between the two samples according to their anthropometric measurements (n=210).

| Items            | Egypt (n=95) | Saudi (n=115) | \( \chi^2 \) | p     |
|------------------|--------------|---------------|-------------|-------|
| Height (cm)      |              |               |             |       |
| \(<150\)         | 14           | 52            | 24.303*     | <0.001*|
| 151–175          | 59           | 52            |             |       |
| 176–200          | 22           | 11            |             |       |
| Weight (kg)      |              |               |             |       |
| \(<50\)          | 3            | 9             | 2.882       | 0.410 |
| 50–75            | 36           | 48            |             |       |
| 76–100           | 42           | 44            |             |       |
| >100             | 14           | 14            |             |       |

\( \chi^2 \) – Chi-square test; * – Statistically significant at \( p \leq 0.05 \).
Table 4. Comparison between total & mean scores of chronic diseases self-efficacy scale among subjects (n=210).

| Chronic disease self-efficacy scale | Egypt (n=95) | Saudi (n=115) | Test of sig | p |
|-------------------------------------|-------------|---------------|-------------|---|
| Low (<50%)                          | 60 63.2     | 1 0.9         | χ²=117.955* | <0.001* |
| Moderate (50–75%)                   | 33 34.7     | 50 43.5       |             |    |
| High (≥75%)                         | 2 2.1       | 64 55.7       |             |    |
| Total Score                         |             |               | U=512.0*    | <0.001* |
| Min–Max                             | 0.0–48.0    | 26.0–57.0     |             |    |
| Mean±SD                             | 21.23±12.12 | 42.98±4.92    |             |    |
| Median                              | 23.0        | 44.0          |             |    |
| Average score                       |             |               | U=512.0*    | <0.001* |
| Min–Max                             | 0.0–2.53    | 1.37–3.0      |             |    |
| Mean±SD                             | 1.12±0.64   | 2.26±0.26     |             |    |
| Median                              | 1.21        | 2.32          |             |    |
| % score                             |             |               | U=512.0*    | <0.001* |
| Min–Max                             | 0.0–84.21   | 45.61–100.0   |             |    |
| Mean±SD                             | 37.25±21.27 | 75.41±8.63    |             |    |
| Median                              | 40.35       | 77.19         |             |    |

U – Mann Whitney test; χ² – Chi-square test; * – Statistically significant at p≤0.05.

Table 5. The relationship between chronic diseases self-efficacy scale and hemodialysis patient’s socio-demographic data (n=210).

| Socio-demographic data | Chronic disease self-efficacy scale | Egypt (n=95) | Saudi (n=115) | Test of sig | p |
|------------------------|-------------------------------------|-------------|---------------|-------------|---|
|                       | Low (n=60)  | Moderate (n=33)  | High (n=2)  | Low (n=1)  | Moderate (n=50)  | High (n=64)  |           |          |
| Sex                    | No. | %  | 50.0 | 0 | 0 | 5 | 10.0 | 4 | 6.3 |
| Male                   | 24  | 60.0 | 15.2 | 5 | 0 | 0 | 5 | 10.0 | 4 | 6.3 |
| Female                 | 36  | 60.0 | 39.4 | 0 | 0 | 0 | 1 | 100.0 | 21 | 42.0 | 21 | 32.8 |
| χ²(6Mc)(p)             | 5.381*(0.041*) | 2.607 (0.231) |           |          |
| Age (years)            |       |           |           |           |           |           |           |          |
| 20–30                  | 2   | 3.3   | 15.2 | 1 | 50.0 | 0 | 0.0 | 5 | 10.0 | 4 | 6.3 |
| 21–40                  | 3   | 5.0   | 24.2 | 1 | 50.0 | 1 | 100.0 | 8 | 16.0 | 17 | 26.6 |
| 41–50                  | 19  | 31.7  | 45.5 | 0 | 0.0 | 0 | 0.0 | 23 | 46.0 | 24 | 37.5 |
| Above 51               | 36  | 60.0  | 15.2 | 0 | 0.0 | 0 | 0.0 | 14 | 28.0 | 19 | 29.7 |
| χ²(6Mc)(p)             | 28.316*(<0.001*) | 6.131 (0.426) |           |          |
| Marital Status         |       |           |           |           |           |           |           |          |
| Married                | 3   | 5.0   | 21.2 | 1 | 50.0 | 0 | 0.0 | 23 | 46.0 | 31 | 48.4 |
| Divorced               | 36  | 60.0  | 57.6 | 1 | 50.0 | 1 | 100.0 | 17 | 34.0 | 26 | 40.6 |
| Absolute               | 4   | 6.7   | 12.1 | 0 | 0.0 | 0 | 0.0 | 5 | 10.0 | 7 | 10.9 |
| Widowed                | 17  | 28.3  | 9.1  | 0 | 0.0 | 0 | 0.0 | 5 | 10.0 | 0 | 0.0 |
| χ²(6Mc)(p)             | 12.563*(0.025*) | 10.153 (0.109) |           |          |
| Resides                |       |           |           |           |           |           |           |          |
| The wife               | 30  | 50.0  | 51.5 | 1 | 50.0 | 0 | 0.0 | 4 | 8.0  | 14 | 21.9 |
| Sons                   | 14  | 23.3  | 9.1  | 0 | 0.0 | 0 | 0.0 | 16 | 32.0 | 12 | 18.8 |
| Relatives              | 4   | 6.7   | 24.2 | 1 | 50.0 | 0 | 0.0 | 13 | 26.0 | 16 | 25.0 |
| Alone                  | 12  | 20.0  | 15.2 | 0 | 0.0 | 1 | 100.0 | 17 | 34.0 | 22 | 34.4 |
| χ²(6Mc)(p)             | 9.822 (0.078) | 7.755 (0.183) |           |          |
### Table 5. Continued.

| Socio-demographic data | Egypt (n=95) | Saudi (n=115) |
|------------------------|-------------|---------------|
|                        | Low (n=60)  | Moderate (n=33) | High (n=2) | Low (n=1)  | Moderate (n=50) | High (n=64) |
|                        | No. | %   | No. | %   | No. | %   | No. | %   | No. | %   | No. | %   |
| Job                    |     |     |     |     |     |     |     |     |     |     |     |     |
| Does not work          | 25  | 41.7 | 6   | 18.2 | 0   | 0.0 | 0   | 0.0  | 13  | 26.0 | 13  | 20.3 |
| Works                  | 17  | 28.3 | 23  | 69.7 | 2   | 100.0 | 1   | 100.0 | 36  | 72.0 | 51  | 79.7 |
| Pension                | 18  | 30.0 | 4   | 12.1 | 0   | 0.0 | 0   | 0.0 | 1   | 2.0  | 0   | 0.0  |
| $\chi^2$ (MC $p$)      | 16.117* (<0.001*) | 5.237 (0.566) |
| Income level           |     |     |     |     |     |     |     |     |     |     |     |     |
| Enough                 | 15  | 25.0 | 14  | 42.4 | 1   | 50.0 | 1   | 100.0 | 27  | 54.0 | 44  | 68.8 |
| Not enough             | 45  | 75.0 | 19  | 57.6 | 1   | 50.0 | 0   | 0.0  | 23  | 46.0 | 20  | 31.3 |
| $\chi^2$ (MC $p$)      | 3.644 (0.170) | 3.140 (0.164) |
| Educational level      |     |     |     |     |     |     |     |     |     |     |     |     |
| Illiterate             | 9   | 15.0 | 0   | 0.0 | 0   | 0.0 | 0   | 0.0  | 8   | 16.0 | 7   | 10.9 |
| Primary education      | 10  | 16.7 | 1   | 3.0 | 0   | 0.0 | 0   | 0.0  | 6   | 12.0 | 6   | 9.4  |
| Intermediate education | 12  | 20.0 | 5   | 15.2 | 0   | 0.0 | 0   | 0.0  | 16  | 32.0 | 26  | 40.6 |
| High school education  | 20  | 33.3 | 17  | 51.5 | 2   | 100.0 | 0   | 0.0  | 11  | 22.0 | 13  | 20.3 |
| University education   | 9   | 15.0 | 6   | 18.2 | 0   | 0.0 | 0   | 0.0  | 9   | 18.0 | 11  | 17.2 |
| Postgraduate           | 0   | 0.0 | 4   | 12.1 | 0   | 0.0 | 1   | 100.0 | 0   | 0.0  | 1   | 1.6  |
| $\chi^2$ (MC $p$)      | 20.634* (0.005*) | 13.179 (0.249) |

$s^2$ – Chi-square test; MC – Monte Carlo; * – Statistically significant at $p \leq 0.05$.

### Table 6. The relationship between chronic diseases self-efficacy scale and patient’s medical and family history (n=210).

| Dialysis data | Chronic disease self-efficacy scale |
|---------------|------------------------------------|
|               | Egypt (n=95) | Saudi (n=115) |
|               | Low (n=60)  | Moderate (n=33) | High (n=2) | Low (n=1)  | Moderate (n=50) | High (n=64) |
|               | No. | %   | No. | %   | No. | %   | No. | %   | No. | %   | No. | %   |
| Since when do you suffer from kidney failure?|     |     |     |     |     |     |     |     |     |     |     |     |
| Less than two years | 8   | 13.3 | 16  | 48.5 | 2   | 100.0 | 0   | 0.0 | 29  | 58.0 | 40  | 62.5 |
| 2–5 years old       | 21  | 35.0 | 13  | 39.4 | 0   | 0.0 | 0   | 0.0  | 13  | 26.0 | 16  | 25.0 |
| More than 5 years   | 31  | 51.7 | 3   | 9.1 | 0   | 0.0 | 0   | 0.0  | 8   | 16.0 | 8   | 12.5 |
| I do not remember   | 0   | 0.0 | 1   | 3.0 | 0   | 0.0 | 1   | 100.0 | 0   | 0.0  | 0   | 0.0  |
| $\chi^2$ (MC $p$)   | 29.195* (<0.001*) | 12.616* (0.046*) |
| How many times do you do dialysis per week?|     |     |     |     |     |     |     |     |     |     |     |     |
| Once                | 1   | 1.7 | 2   | 6.1 | 0   | 0.0 | 0   | 0.0 | 0   | 0.0  | 0   | 0.0 |
| Twice               | 26  | 43.3 | 23  | 69.7 | 1   | 50.0 | 1   | 100.0 | 29  | 58.0 | 34  | 53.1 |
| Three times         | 33  | 55.0 | 8   | 24.2 | 1   | 50.0 | 0   | 0.0 | 9   | 18.0 | 19  | 29.7 |
| Irregular (as per doctor's orders) | 0   | 0.0 | 0   | 0.0 | 0   | 0.0 | 0   | 0.0 | 12  | 24.0 | 11  | 17.2 |
| $\chi^2$ (MC $p$)   | 10.252* (0.018*) | 3.449 (0.526) |
| Do you have anyone in your family who has kidney failure?|     |     |     |     |     |     |     |     |     |     |     |     |
| No                  | 28  | 46.7 | 12  | 36.4 | 1   | 50.0 | 1   | 100.0 | 38  | 76.0 | 51  | 79.7 |
| Yes                 | 24  | 40.0 | 16  | 48.5 | 0   | 0.0 | 0   | 0.0 | 12  | 24.0 | 13  | 20.3 |
| I do not know        | 8   | 13.3 | 5   | 15.2 | 1   | 50.0 | 0   | 0.0 | 0   | 0.0 | 0   | 0.0 |
| $\chi^2$ (MC $p$)   | 3.666 (0.437) | 0.689 (0.731) |

$s^2$ – Chi-square test; MC – Monte Carlo; * – Statistically significant at $p \leq 0.05$. 

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behavior, and physical ability to control their disease and symptoms. Individuals with sufficient self-care and self-efficacy can effectively meet their self-care requirements, assume responsibility for their own health, and plan and organize their daily activities. In contrast, in Egypt, [5] there were statistically significant negative correlations between total scores of coping strategies, self-efficacy, and stressors among hemodialysis patients. At the same time, there was a positive, statistically significant correlation between the total scores of coping strategies and self-efficacy.

Furthermore, another study reported that family support, fatigue, and monthly income are significant criteria that affect the hemodialysis patients’ quality of life [21]. Additionally, Ramezani et al., 2019 [6] highlighted the benefits of self-efficacy; and nurses must employ educational programs based on the theory of self-efficacy to improve self-care behaviors among patients with dialysis.

In Iran, the self-efficacy attributes of the family center empowerment model signify dimensions of self-efficacy for individuals with chronic diseases that can be used to increase and perform programs to empower chronic disease patients [22]. Another study [16] recommended implementing an educational program for patients undergoing hemodialysis to gain the positive effects of this program in supporting the well-being of those patients. Moreover, Lee and Noh [7] proposed that educational strategies to develop self-efficacy, health motivation, and knowledge must be integrated into self-care programs, including their family members, to enhance self-care. There was a significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Egyptian hemodialysis patients, mainly in sex, age, marital status, job, and level of education. In contrast, there was no significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Saudi hemodialysis patients. This finding agrees with another study [18] which identified that self-efficacy is linked with the quality of life among hemodialysis patients. It is imperative to investigate socio-demographic factors affecting HRQOL and indirectly self-efficacy, such as age, sex, education, occupation, and marital status.

This study revealed a statistically significant relationship between chronic disease self-efficacy and medical history among Egyptian hemodialysis patients in the duration of suffered dialysis and weekly dialysis time, while for Saudi hemodialysis patients, only in the duration of suffered dialysis. This finding is consistent with the findings of Mohamed et al. [4], who revealed that compared with the control group, the total average scores of the study group for patients’ knowledge, using the Nottingham scale, revealed statistically significant differences.

They concluded that developing a self-care plan could effectively improve patients’ performance and dependence on hemodialysis. Finally, Aziz et al., 2019 [8] reported that self-efficacy among hemodialysis patients is more impaired than those with other medical conditions such as diabetes, hypertension, and chronic lung disease. Another study [23] emphasized the importance of empowering hemodialysis patients and their caregivers, who can support them in managing health-related issues and develop their self-efficacy, and recommend this before starting dialysis treatment.

Health professionals should educate patients according to their needs and their family and implement empowerment programs to arrange them for the activities needed. Therefore, educational intervention for behavior change based on self-efficacy theory can effectively improve self-care behavior to promote self-care of hemodialysis patients [6].

CONCLUSION

The current study concluded that there is a significant difference between dialysis patients in Egypt and Saudi Arabia, mainly in the main score and levels of self-efficacy. In addition, a significant relationship was found between socio-demographic characteristics and chronic disease self-efficacy among Egyptian hemodialysis patients in sex, age, marital status, job, and level of education. In contrast, there was no significant relationship between socio-demographic characteristics and chronic disease self-efficacy among Saudi hemodialysis patients. Based on the results, it is recommended to strengthen the instructional scheme for hemodialysis and its management to increase self-efficacy among those patients.

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Conflict of interest

The authors declare no conflict of interest.

Ethical Approval

This study was approved by the hospital directors and chief nurses of dialysis units in Egypt and KSA (NUR (9), 9/1/2022).

Consent to participate

Verbal consent was obtained because hemodialysis patients have a specific psychological status during dialysis sessions. The researchers preferred this type of consent after a brief and comprehensive explanation of the study, objectives, and benefits for hemodialysis patients before participation. The patients who agreed to participate in the study were assured that all information obtained would be kept confidential and that they had the right to withdraw from the study at any time.

Authorship

SQ contributed to conceptualization, designed tools, data analysis, editing of the manuscript, and writing the original draft. SE contributed to data collection from Egypt and writing methodology. AA contributed to the introduction & conceptual framework, data curation and collection from KSA, interpretation, and references.

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