

## The Relationship between Locus of Control and Psychological Well-Being among Hemodialysis Patients

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### Abstract

**Background:** Health locus of control (HLOC) influences hemodialysis patients' health beliefs and attitudes which in turn affects their compliance to treatment and psychological well-being (PWB) as well. **Aim: This study aimed** to assess the relationship between locus of control and psychological well-being among hemodialysis patients. **Research design:** A descriptive research design was utilized in this study. **Setting:** This study was carried out in the National Institute of Urology and Nephrology, affiliated to the General Organization for Teaching Hospitals and Institutes, Cairo. **Subjects:** A sample of 100 patients undergoing hemodialysis for more than six months, from both sexes, aging between 18 to 65 years old and do not have any mental disorders. **Tools of data collection:** 1) Interview Questionnaire tool and it includes socio-demographic characteristics and clinical data, 2) Multi-dimensional health locus of control scale and 3) Ryff's psychological well-being scale. **Results:** The study showed that more than half of hemodialysis patients under study had low locus of control and nearly half of them had usual level of psychological well-being. Also, there was a significant relationship between locus of control and psychological well-being among hemodialysis patients. **Conclusions:** There was a significant positive relationship between health locus of control and psychological well-being among hemodialysis patients. **Recommendations:** Further studies are recommended to assess the factors affecting locus of control beliefs and psychological well-being among hemodialysis patients. Also, future research to assess health locus of control and psychological well-being among newly diagnosed hemodialysis patients is recommended.

**Key words:** Health locus of control, Psychological well-being, Hemodialysis.

### Introduction

End-stage renal disease (ESRD) is a progressive and irreversible chronic kidney disease, where the body fails to maintain normal kidneys' functioning. ESRD affects about 11-13% of the population. In addition, hemodialysis is the most frequent treatment modality for ESRD, which compensates the lost functions of the kidneys. (Chen, Knicely & Grams, 2019).

Although hemodialysis can extend the lifespan of ESRD patients, it imposes

many restrictions on the patients. Food and fluid limitations are the most recurrent burden of hemodialysis. Moreover, immobilization, pain, fatigue and malnutrition and anemia are common complications of hemodialysis. In addition, sleep disorders and sexual dysfunction are frequent physical consequences of hemodialysis as well. (Gerogianne & Babatsikou, 2014).

Nevertheless, hemodialysis also affects the social life of the patients in terms of employment, activity, leisure time and financial requirements. Moreover, the patients' self-esteem and psychological

well-being are affected consequences of hemodialysis, affecting about one-third of patients undergoing hemodialysis. (Jones, Harvey, Harris, Butler & DPil, 2017).

Psychological well-being is simply the person's feeling of satisfaction with his own life. Psychological well-being emphasizes on understanding the whole range of well-being and it's linked to physical health. In addition, the patient's psychological status affects their health condition. Moreover, patients with chronic diseases such as ESRD suffer from psychological complaints while struggling to manage their disease. (Mansour, Aboshaiqah, Thultheen & Salim, 2015).

Health locus of control is the patient's prosperity to consider health-related events as controllable by themselves or by external forces. Moreover, health locus of control influences the person's health behavior which consequently influence his health outcomes. In addition, there is an association between locus of control and some aspects of mental health such as self-esteem and adjustment. (Pourhoseinzadeh, Gheibzadeh, Moradikalboland & Cheraghian, 2017).

Health locus of control is a psychological perception concerning control beliefs in relation to illness, which in turn is linked to the psychological well-being of the individual. Regarding health locus of control and psychological well-being, internal locus of control is related to improved psychological well-being. Meanwhile, chance locus of control is associated with poorer psychological well-being and powerful others is linked to better adherence to treatment. (Aflakseir & Abadi, 2018).

Nurses have a central role in caring for hemodialysis patients, as they

particularly require dedicated nursing care that extends beyond technical knowledge and nursing care plans. They require therapeutic and interpersonal relationships, as well as rapid responses to physical symptoms, functional limitations, psychological disturbances and knowledge needs.

(Stavropoulou, Grammatikopoulou, Rovithis, Kyriakidi, Pylarinou & Markaki, 2017).

Besides, the nurse-patient relationship has been recognized as an important factor in the fruitful delivery of health care. As for those with chronic diseases, the nurse-patient relationship affects the patient's compliance to treatment. Moreover, hemodialysis patients require psychological support to adapt to their health status and nurses could help them adapt to their disease consequences by minimizing anxiety, enhancing adaptability and providing emotional support and education. (Shahdadi & Rahnam, 2018).

### Significance of the Study

Hemodialysis is the most common treatment modality for ESRD worldwide. In Egypt, the number of patients undergoing hemodialysis is estimated to be 50269 according to the Egyptian ministry of health in 2018. In addition, health locus of control affects patients' health beliefs and attitudes toward their illness and impacts their adjustment to treatment and hemodialysis schedule which lead to better prognosis and less complications. As to chronic diseases, the psychosocial status of the patient affects his prognosis and health consequences. Also, health locus of control and psychological well-being altogether help in adjusting the proper treatment plan for the patient and helps in providing appropriate counseling and health education to the patient.

Therefore, this study helps in assessing both locus of control and psychological well-being of patients undergoing hemodialysis in order to plan the proper health care plan to optimize the health outcomes of the patients.

### **Aim of the Study**

This study aimed to assess the relationship between locus of control and psychological well-being among hemodialysis patients.

### **Research Question**

- Is there a relationship between locus of control and psychological well-being among hemodialysis patients?

**Subjects and methods of this study were portrayed under four main domains as following:** 1. Technical design. 2. Operational design. 3. Administrative design. 4. Statistical design

### **Technical Design:**

Technical design for this study includes research design, research setting, subjects, and tools of data collection.

### **Research Design:**

A descriptive research design was adopted to achieve the aim of the study.

### **Research Setting:**

The study was conducted in the hemodialysis units in the National Institute of Urology and Nephrology, Cairo, affiliated to the General Organization for Teaching Hospitals and Institutes. It

consists of 44 beds divided into two units (negative HCV and positive HCV).

### **Subjects:**

A purposive sample of 100 patients who fulfilled the following inclusion criteria: **1)** Undergoing hemodialysis for more than 6 months. **2)** Both sexes. **3)** Age between (18-65) years old. **4)** Do not complain from any mental disorders.

### **Tools for data collection:**

In order to fulfill the objective of the study, the data collected using the following tools:

**I) General interview tool:** it was constructed by the researcher and includes data related to socio-demographic characteristics such as age, sex, marital status and some clinical data.

**II) Multi-dimensional health locus of control scale:** it was originally developed by Wallston and Devellis (1978), and adapted by the researcher to assess locus of control expectancies of individual's belief about what influences health. It is composed of 18 items and each item is rated on 3-items likert scale ranging from disagree (1) to agree (3). The total score ranges from 18-54 with lower scores indicating lower locus of control and higher scores indicating higher locus of control.

**III) Ryff's psychological well-being scale:** it is originally developed by Ryff (1989) and adapted by the researcher to measure the individual's psychological well-being. It consists of 42 items, classified into 6 dimensions (autonomy, environmental mastery, purpose in life, personal growth, positive relations with others and self-acceptance). Each item is rated on 3-items likert scale ranging from

disagree (1) to agree (3), reverse scoring for some items is calculated and all are summed together. The total score ranges from 42-126, scores from 42-69 indicates less than usual psychological well-being, scores from 70-98 indicates usual psychological well-being and scores from 99-126 indicates better than usual psychological well-being.

#### **Tools validity:**

Face and content of study tools were validated by jury group consisted of 5 experts from faculty of nursing, Ain-Shams university. Minor modifications were done based on jury opinions such as classifying socio-demographic tool into subgroups.

#### **Tools reliability:**

The reliability of the tools was assessed through measuring their consistency by Cronbach alpha coefficient test. It was proved to be high as following: reliability coefficient of multi-dimensional health locus of control scale = 0.723 and the reliability coefficient of Ryff's psychological well-being scale = 0.708.

#### **2-Operational Design:**

The operational design for this study included pilot study, validity and reliability of the tools and fieldwork of the study.

#### **Pilot Study:**

Pilot study was carried out on 10% of hemodialysis patients, conducted at National Institute for Urology and Nephrology, affiliated to the General Organization for Teaching Hospitals and Institutes, Cairo, to test the applicability and clarity of questions of the proposed tools and to assess the needed time for

filling the tools. The time needed for filling the tools was estimated to be from 30-45 minutes. The pilot study participants were excluded from the total sample.

#### **Field Work:**

Data were collected from August, 2018 till February, 2019 in the hemodialysis units at the National Institute of Urology and Nephrology, Cairo, affiliated to the General Organization for Teaching Hospitals and Institutes. Data were collected 4 days per week with estimated working hours of 4 hours per day. The time consumed to fill the data collection tools was approximately 45 mins.

#### **3-Administrative Design:**

An approval was obtained from the dean of faculty of nursing, Ain-Shams university and the responsible authorities in the study setting before conducting the study.

#### **Ethical Consideration:**

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All subjects were informed that participation in the study is voluntary and anonymity and confidentiality of each subject would be respected and protected. Confidentiality was assured and subjects were informed that the content of the tool will be used for research purpose only and that they have the right to withdraw from the study at any time.

#### **4-Statistical Design:**

Statistical data entry and analysis were done using the SPSS program version 20.0. quantitative data were expressed as mean  $\pm$  SD. Qualitative data were expressed as frequency and percentages.

- Chi-square ( $\chi^2$ ) test of significance was used in order to compare proportions between qualitative parameters.

- Spearman's rank correlation coefficient (rs) was used to assess the degree of association between two sets of variables if one or both of them was skewed.

- The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as follow:

⇒ P-value  $\leq$  0.05 was considered significant.

⇒ P-value  $\leq$  0.001 was considered as highly significant.

⇒ P-value  $>$  0.05 was considered as insignificant.

### **Results:**

**Table (1):** shows that the socio-demographic characteristics of the patients were as follow: Mean & standard deviation of age was  $41.93 \pm 7.55$ , and 36% of the studied sample fall between age group 35-50 years. 57% of the subjects were males, 59% of them were married and 47% of the subjects had intermediate level of education.

**Table (2):** demonstrates that as for internal health locus of control, 62% and 58% of hemodialysis patients disagreed that if their condition took a turn for the worse, it is because they haven't been taking proper care of themselves and that whatever goes wrong with their condition is their own fault, successively. In addition, as to chance health locus of control, almost the whole of the study subjects (100% & 97%) agreed that as to their condition, what will be, would be and that if their condition worsens it's a matter of fate, respectively. Moreover, regarding powerful others health locus of control,

more than four-fifths of hemodialysis patients under study (87%) and (81%) agreed that whenever their condition worsens, they should consult a medically trained professional and that following doctor's orders to the letter is the best way to keep their condition from getting any worse, consecutively.

**Figure (1):** displays that more than half of the subjects (55%) had low health locus of control.

**Table (3):** displays that regarding autonomy, 69% and 50% of the patients judge themselves by what they think is important, not by the values of what others think is important and they had confidence in their opinions, even if they are contrary to the general consensus, respectively. Concerning environmental mastery, 69% of the subjects fit well with the people and the community around them, and 65% of them feel that they are in charge of the situation in which they live. As to personal growth, 72% of the subjects do not enjoy being in new situations that require them to change their old familiar ways of doing things and 70% of them have a sense that they have developed as a lot as a person overtime.

**Table (4):** demonstrates that concerning positive relations with others, 79% of the subjects enjoy personal and mutual conversations with family members or friends and 76% of them know that they can trust their friends and know that their friends could trust them. In addition, as to purpose in life, 76% of the patients under study do not live life one day at a time and they think about the future, and 67% of them believed that their daily activities often seem important and of a value to them. Moreover, regarding self-acceptance, 71% of the subjects feel like many of the people they know have gotten more out of life than they had and

51% of them like most aspects of their personality.

**Figure (2):** illustrates that nearly half of the patients (46%) had usual level of psychological well-being.

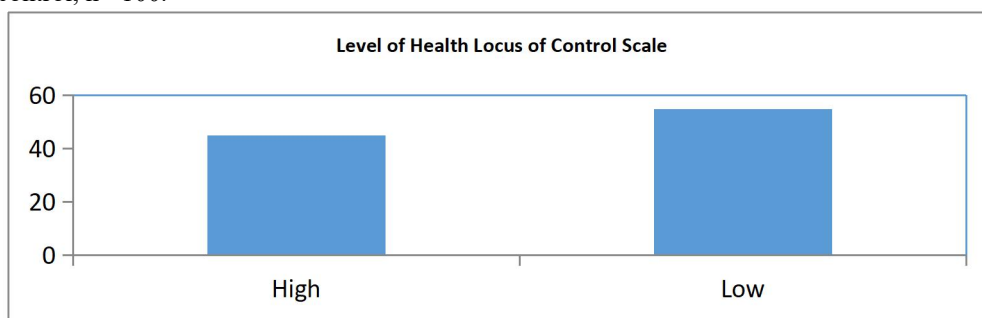
**Table (5):** shows that there is a statistical relation between health locus of control and psychological well-being among hemodialysis patients.

**Table (1):** socio-demographic characteristics of hemodialysis patients, n=100.

Socio-demographic and clinical characteristics	No.	%
<b>Age (years)</b>		
20-35 years	35	35
35-50 years	36	36
≥50 years	29	29
Mean±SD	41.93±7.55	
<b>Gender</b>		
Female	43	43
Male	57	57
<b>Marital Status</b>		
Divorced	4	4
Married	59	59
Single	32	32
Widow	5	5
<b>Level of Education</b>		
High	43	43
Illiterate	1	1
Intermediate	47	47
Read & write	9	9
<b>Years of Hemodialysis</b>		
3-5 years	7	7
5-8 years	50	50
≥8 years	43	43
Mean±SD	7.65±1.38	
<b>Type of Insurance</b>		
Ministry of health	6	6
Social	94	94
<b>Sessions/week</b>		
2.00	1	1
3.00	99	99
<b>Income</b>		
<3000 LE	13	13
3000-6000 LE	65	65
≥6000 LE	22	22
Mean±SD	4718.95±849.41	

**Table (2):** distribution of hemodialysis patients according to health locus of control, n=100.

Internal locus of control	Disagree		Sometimes		Agree	
	No.	%	No.	%	No.	%
If my condition worsens, it is my own behavior which determines how soon I will feel better again	37	37	26	26	37	37
I am directly responsible for my condition getting better or worse	37	37	29	29	34	34
Whatever goes wrong with my condition is my own fault	58	58	27	27	15	15
The main thing which affects my condition is what I myself do	41	41	22	22	37	37
I deserve the credit when my condition improves and the blame when it gets worse	55	55	23	23	22	22
If my condition takes a turn for the worse, it is because I have not been taking proper care of myself	62	62	25	25	13	13
<b>Chance locus of control</b>						
As to my condition, what will be will be.	0	0	0	0	10	10
Most things that affect my condition happen to me by chance.	48	48	11	11	41	41
Luck plays a big part in determining how my condition improves.	81	81	4	4	15	15
Whatever improvement occurs with my condition is largely a matter of good fortune.	79	79	11	11	10	10
If my condition worsens, it's a matter of fate.	2	2	1	1	97	97
If I am lucky, my condition will get better.	65	65	9	9	26	26
<b>Powerful others locus of control</b>						
If I see my doctor regularly, I am less likely to have problems with my condition.	15	15	17	17	68	68
Whenever my condition worsens, I should consult a medically trained professional.	7	7	6	6	87	87
Other people play a big role in whether my condition improves, stays the same, or gets worse.	49	49	23	23	28	28
In order for my condition to improve, it is up to other people to see that the right things happen.	11	11	32	32	57	57
Following doctor's orders to the letter is the best way to keep my condition from getting any worse.	6	6	13	13	81	81
The type of help I receive from other people determines how soon my condition improves	25	25	31	31	44	44

**Figure (1):** distribution of hemodialysis patients according to total health locus of control, n= 100.

**Table (3):** distribution of hemodialysis patients according to psychological well-being; autonomy, environmental mastery and personal growth, n= 100.

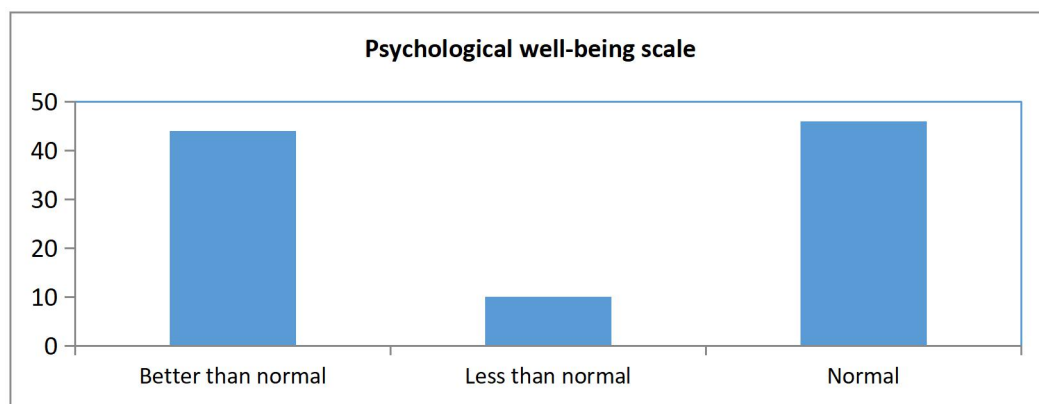
Autonomy	Disagree		Sometimes		Agree	
	No.	%	No.	%	No.	%
I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people	31	31	24	24	45	45
My decisions are not usually influenced by what everyone else is doing.	36	36	19	19	45	45
I tend to worry about what other people think of me.	46	46	20	20	34	34
I tend to be influenced by people with strong opinions	50	50	18	18	32	32
I have confidence in my opinions, even if they are contrary to the general consensus	27	27	23	23	50	50
It's difficult for me to voice my own opinions on controversial matters	28	28	25	25	47	47
I judge myself by what I think is important, not by the values of what others think is important.	9	9	22	22	69	69
<b>Environmental mastery</b>						
In general, I feel I am in charge of the situation in which I live.	14	14	21	21	65	65
The demands of everyday life often get me down.	47	47	29	29	24	24
I do not fit very well with the people and the community around me.	69	69	18	18	13	13
I am quite good at managing the many responsibilities of my daily life	18	18	32	32	50	50
I often feel overwhelmed by my responsibilities	42	42	19	19	39	39
I have difficulty arranging my life in a way that is satisfying to me.	18	18	28	28	54	54
I have been able to build a home and a lifestyle for myself that is much to my liking	28	28	30	30	42	42
<b>Personal growth</b>						
I am not interested in activities that will expand my horizons	65	65	19	19	16	16
I think it is important to have new experiences that challenge how you think about yourself and the world.	12	12	25	25	63	63
When I think about it, I haven't really improved much as a person over the years.	56	56	30	30	14	14
I have the sense that I have developed a lot as a person over time.	5	5	25	25	70	70
I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	6	6	22	22	72	72
For me, life has been a continuous process of learning, changing, and growth	7	7	29	29	64	64
I gave up trying to make big improvements or changes in my life a long time ago	65	65	21	21	14	14



**Table (4):** distribution of hemodialysis patients according to psychological well-being; positive relations with others, purpose in life and self-acceptance, n= 100.

	Disagree		Sometimes		Agree	
	No.	%	No.	%	No.	%
<b>Positive relations with others</b>						
Most people see me as loving and affectionate.	12	12	22	22	66	66
Maintaining close relationships has been difficult and frustrating for me.	66	66	24	24	10	10
I often feel lonely because I have few close friends with whom to share my concerns	71	71	21	21	8	8
I enjoy personal and mutual conversations with family members or friends.	5	5	16	16	79	79
People would describe me as a giving person, willing to share my time with others.	9	9	21	21	70	70
I have not experienced many warm and trusting relationships with others	70	70	20	20	10	10
I know that I can trust my friends, and they know they can trust me.	5	5	19	19	76	76
<b>Purpose in life</b>						
I live life one day at a time and don't really think about the future.	76	76	8	8	16	16
I have a sense of direction and purpose in life.	18	18	33	33	49	49
My daily activities often seem trivial and unimportant to me.	67	67	25	25	8	8
I don't have a good sense of what it is I'm trying to accomplish in life	33	33	20	20	47	47
I enjoy making plans for the future and working to make them a reality.	9	9	37	37	54	54
Some people wander aimlessly through life, but I am not one of them	6	6	28	28	66	66
I sometimes feel as if I've done all there is to do in life	66	66	11	11	23	23
<b>Self-acceptance</b>						
When I look at the story of my life, I am pleased with how things have turned out.	40	40	34	34	26	26
In general, I feel confident and positive about myself	28	28	32	32	40	40
I feel like many of the people I know have gotten more out of life than I have.	19	19	10	10	71	71
I like most aspects of my personality	18	18	31	31	51	51
In many ways, I feel disappointed about my achievements in life.	27	27	29	29	44	44
My attitude about myself is probably not as positive as most people feel about themselves.	44	44	27	27	29	29
When I compare myself to friends and acquaintances, it makes me feel good about who I am.	42	42	27	27	31	31

**Figure (2):** distribution of hemodialysis patients according to total psychological well-being, n=100.



**Table (5):** relation between health locus of control and psychological well-being among hemodialysis patients.

	Total scores Health Locus of Control Scale	
Total score of psychological well-being scale	r	p-value
	0.428	0.032*

## Discussion

Hemodialysis is a life-saving treatment that compensates the lost functions of the kidneys in patients with End-Stage Renal Disease. However, many physical, social and psychological difficulties accompany the treatment. Moreover, health locus of control and psychological well-being affect the patient's compliance to treatment, resulting in better prognosis and outcomes.

## Socio-demographic Characteristics

The results of the current study showed that the highest percentages of hemodialysis patients under study were males and aged from 35-50 years old. This may be because men usually have unhealthy lifestyles in their adolescence, neglecting periodical medical check-ups and over consumption of non-prescribed analgesics. These unhealthy habits in adolescence often tend to affect the health status in their adulthood.

These results are consistent with that of El-Arbagy, Yassin & Boshra (2015), whom study aimed to assess the prevalence rate, etiology and risk factors for ESRD in Assiut governorate, Egypt. The results of their study showed that more than half of the sample were males and aged from 20-50 years old.

Concerning duration of hemodialysis and number of hemodialysis sessions per week, our study showed that the highest percentages of the subjects were on hemodialysis for more than 5 years, and they had three sessions per week. This reflects that hemodialysis patients have high adherence to the treatment plan and following the medical staff's instructions to avoid any further medical complications.

These results are similar to the findings of Vasilopoulou, Bourtsi, Giaple,

Koutelekos, Theofilou & Polikaudrioti (2016), in their study to explore the impact of anxiety and depression on the quality of life of hemodialysis patients.

## Health locus of control

The results of the present study showed that the majority of hemodialysis patients under study had low internal health locus of control. This may be due to the patients' dependence on the medical staff to make important decisions regarding their disease and treatment plan. For example, the patients under study have modified their lifestyle to adapt to hemodialysis schedule and to the treatment restrictions. This also may be due to the fact that the patients view hemodialysis as their only way of surviving and that they do not want to risk their life by making health-related decisions on their own.

The results of our study get along with the results of Aliha (2015), in his study which aimed to assess the relationship between quality of life and health locus of control in hemodialysis patients. His results showed that the lowest score of health locus of control belief among hemodialysis patients was for internal health locus of control belief.

Moreover, the findings of our study showed that the highest percentage of patients under study had low score on chance health locus of control subscale. This may be due to cultural factor, that is the Egyptians are known for their religious nature and for having high faith in God. This also reflects the patient's compliance to treatment and medical instructions and that they have accepted their current life circumstances.

These results are similar to the findings of Bonafe, Maroco & Campos (2018) in their study to evaluate the locus of control among individuals with

different pain conditions. Their findings revealed that the highest prevalence of individuals under study had low score on chance health locus of control subscale.

Nevertheless, the results of our study showed that the highest percentages of hemodialysis patients under study had high powerful others health locus of control.

This may be due to the patients' trust in the medical staff and that they are strongly affected by them and that they depend on the staff in terms related to their health condition. Another reason is that the majority of the patients have been on hemodialysis treatment for so long and they have been throughout many health problems and complications, and only following the medical staff's orders helped them overcome those difficulties.

These results get along with the results of Fan, Kong, Shi & Cheng (2016), in their study that aimed to investigate the association between health locus of control and self-management behaviors in patients receiving hemodialysis. Their findings demonstrated that the patients under study had high level of powerful others health locus of control.

Consequently, our study revealed that the highest percentage of hemodialysis patients under study had low level of health locus of control. This may be due to the multiple stressors the patients are facing due to their health condition, that they had modified their lifestyles and used different coping patterns to adapt to the disease.

These findings are consistent with the findings of Mehrtak, Habibzadeh, Farzaneh & Khiavvi (2017), in their study to determine the effectiveness of teaching cognitive-behavioral techniques on locus of control in hemodialysis patients. The findings of their study showed that the

majority of hemodialysis patients under study had low locus of control.

### **Psychological well-being among hemodialysis patients**

Owing to autonomy, our study showed that the majority of the patients under study have high level of autonomy. This may be due to the prolonged duration of hemodialysis treatment that provided them with practical knowledge regarding their condition. This knowledge is presented in the form of their awareness about their dietary limitations, essential laboratory tests (as hemoglobin level), their prescribed medications, how to care for their shunt/catheter and to avoid any probable infections and complications.

Our results are consistent with the findings of Chen, Chang, Tsal & Hou (2017), in their study to evaluate the effect of perceived autonomy support and basic need satisfaction on quality of life in hemodialysis patients. Their findings showed that the highest percentage of patients had high level of autonomy.

Regarding environmental mastery, the highest percentage of the subjects had normal environmental mastery. This may be due to the social and psychological support they get from significant others and medical staff to cope with their condition. In addition, this could be due to the patient's ability to manage unstable health consequences, maintain satisfactory living conditions to themselves and using different coping techniques to compensate their physical limitations.

These results contradict the findings of Tramonti, Maestri, Gronchi, Fabbri, Coscio, Carnicelli & Bonanni (2015), in their study to assess psychological well-being of patients with insomnia and its relationship with anxiety

and depression. Their findings indicated that patients had low environmental mastery.

This contradiction may be attributable to the patients' faith and belief in God, that make them able to handle the burdens of hemodialysis. It also may be due to the patients' use of coping techniques to counterbalance the burden and consequences of hemodialysis.

Concerning personal growth, the highest percentages of hemodialysis patients under study had high percentage of personal growth. This could be due to the patients' resilience, which stood out as a means to face the complications caused by chronic renal failure and hemodialysis and acts out as a form of psychological adaptation to the changes in their old lifestyle. Another possible explanation is that patients receive counseling services that might contribute to managing distress and burdens of hemodialysis.

The results of our study are inconsistent with the findings of Jackson & Macleod (2017), in their study to assess well-being in chronic fatigue syndrome: relationship to symptoms and psychological distress. The results of their study showed that the majority of the patients under study had usual (normal) level of personal growth.

This contradiction could be related to the resilience of hemodialysis patients under study and to the support system surrounding the patients.

Regarding **Positive relations with others**, the results of our study showed that the highest percentage of the patients had high positive relations with others. This may be due to the fact that the patients spend nearly three days every week with four hours each day with other patients and the medical staff, which in

turn creates a warm and friendly atmosphere that encourage them to interact with each other. Also, the presence of other patients during the hemodialysis sessions provides support to the patients and they feel that they are not alone in their suffer.

The results of our study are consistent with the results of Seraji, Shojaeizadeh & Rakhshani (2018), in their study to assess well-being in hemodialysis patients. Their results showed that most of the patients had high of positive relations with others.

Concerning **Purpose in life**, the highest percentage of the subjects had high level of purpose in life. This may be due to the fact that moving into new stressful situation in life, opens up the way for new possibilities to emerge allowing life purpose to evolve. In addition, hemodialysis treatment leads to loss of freedom, dependence on caregiver, disruption in social and marital life and causes financial hardships. Also, hemodialysis routine interferes with the patient's vacations, activities and their ability to enjoy their life.

These findings are consistent with the findings of Tramonti, Maestri, Gronchi, Fabbrini, Coscio, Carnicelli & Bonanni (2015), in their study to assess psychological well-being of patients with insomnia and its relationship with anxiety and depression. Their study findings showed that the highest percentages of the patients had high purpose in life.

About **Self-acceptance**, the results of our study showed that the highest percentage of patients had low self-acceptance. This may be due to the long duration of being on hemodialysis treatment and that they feel overwhelmed by the disease and its burden. In addition, the patients feel that they are not able to achieve acceptable life standards of their

own due to the continuous alteration of their lifestyle to adapt to the consequences of hemodialysis. Moreover, this decrease in self-acceptance may be due to the lowered self-esteem of hemodialysis patients.

Our study results are inconsistent with the findings of Mansour, Aboshaiqah, Thultheen& salim (2015), in their study which aimed to assess the psychological well-being of Saudi patients diagnosed with chronic illnesses. The findings of their study showed that the majority of the patients had usual to high level of self-acceptance.

This contradiction may be due to the prolonged duration of hemodialysis as the longer the duration is, the more complications the patients confront and the more they become aware of their weaknesses and disabilities making them less satisfied and less self-accepting.

Regarding *total level of psychological well-being*, the results of our study showed that the highest percentage of the studied sample had usual (moderate) level of psychological well-being. This may be due to the patients' compliance to treatment and adherence to hemodialysis schedule which in turn affect their psychological well-being. One other reason is that the patients had depressive feelings and distress, however, they have utilized the available resources in their life to help them counterbalance this distress.

The findings of our study are consistent with the findings of Garib, Khosravi, Eftekari, Kavakeb& Rahimi (2016), in their study to assess the quality of life of patients undergoing hemodialysis in Iran. The findings of their study indicated that most of the patients had usual (moderate) level of psychological well-being.

### **Relationship between health locus of control and psychological well-being among hemodialysis patients**

The results of our study showed that there is a significant relation between health locus of control and psychological well-being among hemodialysis patients under study, as higher scores of health locus of control was associated with higher score of psychological well-being.

This could be explained in different ways. One explanation is that patients who believe they had low or no control over their disease and condition, have feelings of helplessness, passivity, loss of interest and depression which affects the patients' psychological well-being negatively. Moreover, health locus of control is known as a variable influencing the development of health behavior and health capacity, as low locus of control couples with negative health behaviors and associated with poor psychological well-being.

The results of our study are consistent with the results of Aliha (2015), in his study to assess the relationship between quality of life and health locus of control beliefs in hemodialysis patients. The results of his study showed that psychological well-being in hemodialysis patients was directly correlated with health locus of control beliefs.

Besides, the results of our study get along with the findings of Chimezie, Chibuike& Emmanuel (2017), in their study to assess the role of locus of control and gender on psychological well-being among young athletes. The result of their study showed that locus of control plays a significant role on psychological well-being of young athletes.

### **Conclusion**

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The research study reached the conclusion that there is a positive relationship between health locus of control and psychological well-being among hemodialysis patients.

### Recommendations

- Interventional program should be developed to enhance health locus of control among hemodialysis patients.
- It's recommended to conduct further studies to identify and assess the factors affecting health locus of control and psychological well-being of hemodialysis patients.
- Future research is recommended to assess health locus of control and psychological well-being of newly-diagnosed hemodialysis patients.

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