

Effect of Nursing Guidelines on Anxiety and Depression among Critically Ill Patients with Acute Kidney Injury and Undergoing Hemodialysis

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Abstract: Critically ill patients undergoing hemodialysis suffer from, anxiety and depression and experience serious changes in patients hemodynamic during hemodialysis session. Aim: investigate the effect of effect of nursing guidelines on anxiety and depression among critically ill patients with acute kidney injury and undergoing hemodialysis. Design: a quasi-experimental research design. Research hypothesis: The anxiety and depression score in interventional group is lower after receiving nursing guidelines than control group. Setting: general intensive care unit and hemodialysis unit at Assuit University Hospitals. Subject: A convenience sample of 60 adults' critically ill patients diagnosed with acute renal failure undergoing hemodialysis. Results: There were significant differences between both groups in anxiety and depression. Conclusion: The study group had moderate level of anxiety and depression than control group.

Keywords: Nursing guidelines, Anxiety, Depression, critically ill patients & Hemodialysis.

I. INTRODUCTION

Acute kidney injury (AKI) is a common complication in critically ill patients and is associated with high morbidity and mortality. The incidence of AKI is now believed to be significantly higher than previously believed with over 50% of patients in the ICU developing AKI at some point during the course of their critical illness. Those that require renal replacement therapy (RRT) mortality may be as high as 80%. AKI is characterized by a sudden decrease in kidney function over a period of hours to days, resulting in accumulation of creatinine, urea, and other waste products⁽¹⁾.

Nobody knows better than you do the feelings you have about starting dialysis. You are about to enter an unfamiliar world filled with new routines, a new set of rules, people, strange machines and tests. You may be scared, anxious, resentful, hopeful, optimistic, angry, sad, all of these or none of these. Although you may know that dialysis can be a life-saving treatment, you may not fully understand that it may also be a life-changing experience⁽²⁾. Thoughts expressed by patient upon first learning they needed to start dialysis: "I don't want to do it. I don't have time. My life will change. There must be a pill I can take. Will I actually feel better? Will I still be independent?"

The psychological status of each patient undergoing dialysis (RRT) should be evaluated by professional nurse upon initiation of dialysis and then at least biannually, with specific focus on the presence of depression and anxiety. Depression and anxiety are among the most common comorbid illnesses in people with acute renal failure disease. These Patients face many challenges which increase worsens these conditions⁽³⁾. These include a general feeling of wellness; and major disruptions in patients' condition. Anxiety and depression has been studied extensively in patients on dialysis, and much effort has been done to validate the proper screening tools to diagnose depression and to define the treatment options for patients on maintenance dialysis with depression⁽⁴⁾.

It is important to teach patient to deal with psychological problems through apply nursing guidelines. For example, relaxation techniques will help the patient to cope better with the effects of stress, particularly if they are used regularly and not just when someone is feeling under particular pressure. Relaxation exercises can also be used to help patients before start of dialysis to release chemicals called endorphins. Exercise can also give patient more energy, improve their sleep, appetite and a healthy diet, and discussing problems with doctors and other health care providers, including mental health specialists, social workers and others, can go a long way toward addressing physical and emotional challenges^(2,4).

Behavioral changes regarding hemodialysis can be observed by every member of the nursing care team. Critical care nurse and psychiatric nurses, are responsible for the mental care, in addition to the physical care of the patients educating them of the methods to develop the mental health of patients is essential and play a central role in patients anxiety disorders should take place at the time of hemodialysis session initiation; as part of an annual mental health evaluation; when coexistent depression is suspected; during the occurrence of major life stressors; when a marked change in patients and psychotherapeutic interventions such as cognitive-behavioral psychotherapies⁽⁵⁾. Therefore the study was done to investigate the effect of nursing guidelines on anxiety and depression among critically ill patients with acute kidney injury and undergoing hemodialysis

Aim of This Study:

The study was conducted to investigate the effect of nursing guidelines on anxiety and depression among critically ill patients with acute kidney injury and undergoing hemodialysis.

II. SUBJECT

Design:

A quasi experimental research design was used in this study.

Setting:

The study was conducted in two units of Assuit Main University Hospital namely: general intensive care unit (eight beds) and hemodialysis unit (...beds).

Sample:

A convenient sample of approximately sixty critically ill patients with acute kidney injury and undergoing the first session of hemodialysis were assigned to interventional and control groups (30 patients for each) during the period of data collection from June 2018 to June 2019.

III. TOOLS

One tool was used in this study

Beck anxiety and depression scale ": This tool was adopted from (Beck 1988)⁽⁶⁾ and used to investigate the effect of nursing guidelines on anxiety and depression among critically ill patients with acute kidney injury and undergoing hemodialysis. It consists of three parts namely;

Part I: Patient assessment data which included two parts; patient's demographic data such as age, sex, level of education, and current diagnosis and patient clinical data such as date of admission, date of discharge and predisposing factors for acute kidney injury

Part II: Anxiety assessment scale (Beck scale): It used to assess the studied patients regarding anxiety level before and during first hemodialysis session. It consist of 21 statement every statement take four grades (0 to 3) and finally calculate the scoring system as patient low level of anxiety (0 - 7), Mild level of anxiety (8 - 15), Moderate level of anxiety (16 - 25) and Sever level of anxiety (26 - 63).

Part III: depression assessment scale (Beck scale). It used to assess the studied patients regarding depression level before and after hemodialysis session. It consist of 21 statement from (1-21) which includes 21 statement every statement take four grads (0 to 3) and finally calculate the scoring system as normal mood (1-10), mild mood disturbance (11-16), borderline clinical depression (17-20), moderate depression 920-30), severe depression (31-40) and extreme depression (over 40)

IV. METHODS

The study design was accomplished as follow:

- Permission to conduct the study was obtained from the hospitals' responsible authority after explanation of the aim of the study
- Informed consent was obtained from every critically ill patient or their relatives after the explanation of the aim of the study.
- The study subjects were assured about the confidentiality of the data collected and the right to refuse to participate in the study.
- Tool I (Beck anxiety and depression scale) was adopted by (Beck 1988)⁽⁶⁾
- Content validity was done for the tool II by five experts in the fields of critical care and working in hemodialysis unit at Assuit and Alexandria University and the necessary modifications were done accordingly.
- A pilot study was conducted on six critically ill patients to test the tool for the clarity, objectivity, feasibility, then necessary modifications were carried out and the results were excluded from the study.
- The Reliability of Beck anxiety inventory and depression scale are Cronbach's Alpha (0.94)

Actual Study The current study was carried out in **four phases**:

Assessment phase:

- The researcher assessed the patient in ICU for diagnosis AKI and indicated for first session hemodialysis
- The researcher explained the nature and purpose of the study to patients and the health team member in hemodialysis unit.
- the researcher assess level of anxiety and depression in the control and intervention group by using too I (Beck anxiety and depression scale) before starting hemodialysis session

Preparation phase:

The researcher prepares the nursing guidelines after reviewing related literature⁽⁷⁻¹⁰⁾ and the environment of hemodialysis unit and the patient before first dialysis session.

Implementation phase:

- **For the interventional group** the researcher apply the nursing guidelines to decrease level of anxiety and depression .It is consist of
 1. Teaching patient and give information about disease process of acute kidney injury such as definition, risk factors, signs& symptoms, treatments, hemodialysis purpose and importance and time of hemodialysis session on dialysis machine with simple terms and concise phrases according to level of education by using simple small poster
 2. Emotional support and let person from his family stay beside him to give assure
 3. Learning and practicing relaxation techniques was help the patient to cope better with the effects of stress such as muscle exercises, working around the different muscle groups in your body
 4. Keep the environment quite as possible
- **For the control group:** patients who take routine hospital nursing care for hemodialysis

Evaluation phase:

- The researcher assess level of anxiety and depression for both group using tool I(Beck anxiety and depression scale)

Statistical analysis of the data:

The collected data were coded and entered in a data based file using the excel program for windows. Frequency analysis and manual revision were used to detect any errors. Statistical analysis were performed using the software program package SPSS, version 20 (SPSS Inc., Chicago, USA). Values are expressed as means + standard deviation (continuous variables) or as percentages of the group from which they were derived (categorical variables). Chi square test was used to compare the frequencies or proportions between the control and intervention groups. Independent samples t-test was used to compare the values of the mean score between the control and the intervention group. The critical value of the tests “P” was considered statistically significant when P less than 0.05.

V. RESULTS

Table1. Show the distribution of the studied critically ill patients according to their characteristics. It was found that more than half of critically ill patients in both group control and intervention were male (53.33% and 60%) and less than half of them (36.67 % - 30.00 %) aged between 40 to less than 50 years old. As regards patient medical history more than half of them (63.33%) had diabetes mellitus. the same table revealed that about two third of intervention group (70%) admitted in trauma unit

Table 2: Explain the distribution of the studied critically ill patient in control and interventional group according to level of anxiety and depression after application of nursing guidelines. It was found that all patient in control group (100%) had severe level of anxiety and about two third of interventional group (63.33%) had moderate level of anxiety after application of nursing guidelines (figure 1). the same table reveals that the majority of control group (90%) had very severe level of depression and more than half of interventional group (53.3%) had moderate level of depression after receiving nursing guidelines (figure 2). Statistical significant differences in anxiety and depression level were observed between the control and intervention group related to application of nursing guidelines helped the intervention group to less anxious and depression than control group (P<0.001,P <0.001 respectively)

Table 3. Illustrate the mean score percentage of control and intervention group level of anxiety and depression after application of nursing guidelines and their characteristics. It was observed that there statistical significant differences between control and intervention group in level of anxiety and relation to their age (P=0.011)

Table I: distribution of the studied critically ill patients according to their characteristics

Items	Control(n=30)		Study(n=30)		X ²
	No.	%	No.	%	
1.Age groups					
20 < 30 years	4	13.33	5	16.67	0.656
30<40	6	20.00	8	26.67	
40< 50	11	36.67	9	30.00	
50<60	9	30.00	8	26.67	
Mean± SD	42.9±9.81		39.93±9.85		1.169
2.Gender					
Male	16	53.33	18	60	0.000
Female	14	46.66	12	40	
3.Past medical history					
Diabetes mellitus	11	36.67	19	63.33	8.833
Acute nephritis	5	16.67	0	0.00	
Chronic renal stone	5	16.67	3	10.00	
Hypertension	4	13.33	4	13.33	
Heart failure	3	10.00	1	3.33	
Acute stroke	2	6.67	3	10.00	
4.Type of ICU					
- Trauma ICU	18	60	21	70.00	0.453
- General ICU	12	40	9	30.00	

Table 2: Comparison between the intervention and control groups regarding level of anxiety and depression after implementation of nursing guidelines

Items	Control(n=30)		Study(n=30)		X ²	P. value
	No.	%	No.	%		
Anxiety Level						
Mild anxiety	0	0.0	1	3.3	30.000	<0.001**
Moderate anxiety	0	0.0	19	63.3		
Severe anxiety	30	100.0	10	33.3		
Mean±SD	52.4±3.95		23.9±5.4		23.316	<0.001**
Depression Level						
Non	0	0.0	0	0.0	50.250	<0.001**
Mild	0	0.0	1	3.3		
Moderate	0	0.0	16	53.3		
Severe	3	10.0	13	43.3		
very severe	27	90.0	0	0.0		
Mean±SD	51.43±8.79		22.83±5.09		15.423	<0.001**

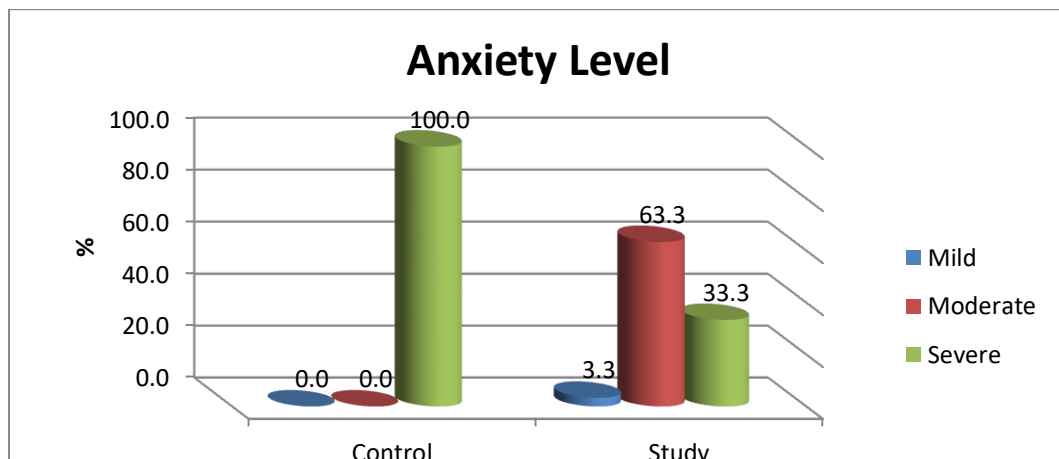


Figure (1) :- Comparison between control and intervention group according to level of anxiety

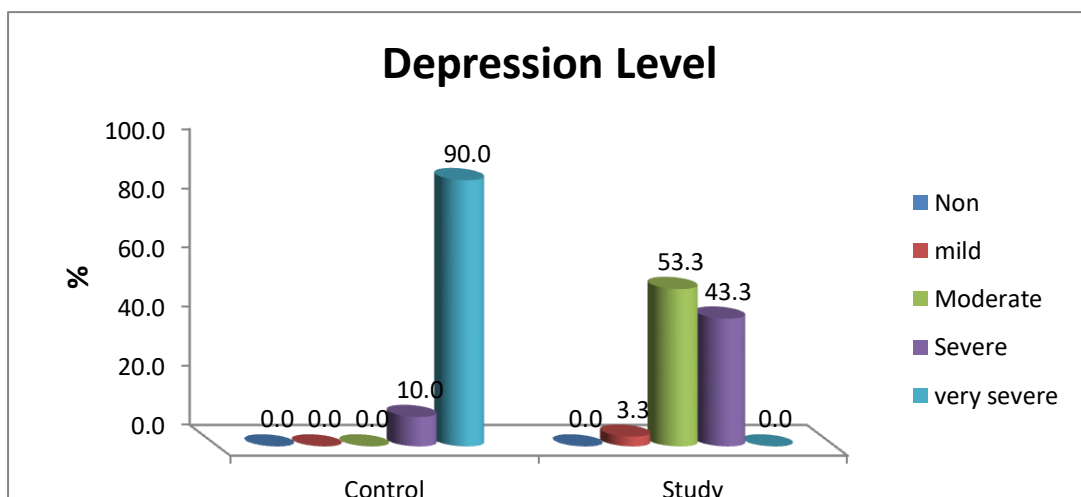


Figure (2):- Comparison between control and intervention group according to level of depression

Table (3) :-The mean score percentage of control and intervention group level of anxiety and depression after application of nursing guidelines and their characteristics

Items	Anxiety		Depression	
	Control (n=30)	Study (n=30)	Control (n=30)	Study (n=30)
	Mean±SD	Mean±SD	Mean±SD	Mean±SD
1.Age groups				
20 < 30 years	55±1.83	21±5.83	54.25±1.5	19.8±3.83
30<40	53.83±2.79	20.75±4.3	53.33±3.27	22.13±3.31
40< 50	50.73±5.5	28.22±3.23	49.73±12.08	24.78±6.14
50<60	52.33±2	24±5.45	51±8.9	23.25±5.73
P.value	0.216	0.011*	0.789	0.363
2.Gender				
Male	52±4.98	24.25±4.51	49.25±11.3	22.63±5.74
Female	52.86±2.41	23.5±6.43	53.93±3.52	23.07±4.45
P.value	0.563	0.712	0.149	0.815
3.Past medical history				
Diabetes mellitus	50.09±4.09	22.58±4.74	50.73±9.29	22.84±4.88
Acute nephritis	52.8±1.3	-	49.4±10.92	-
Chronic renal stone	51.8±5.59	23.33±5.03	49±13.47	20.67±4.62
Hypertension	54.75±1.5	28±6.98	55.5±0.58	20.75±4.65
Heart failure	56.67±0.58	23±0	54.33±1.53	19±0
Acute stroke	54.5±0.71	27.67±7.09	54±2.83	29±5.29
P.value	0.077	0.301	0.864	0.183
4.Progress				
Improved	52.25±4.53	23.48±4.86	50.55±10.28	22.83±5.4
Unimproved	54.17±1.94	25±9.31	55.17±1.17	23.25±5.19
Died	50.5±1.91	25.67±4.93	50.25±6.29	22.33±3.79
P.value	0.353	0.745	0.523	0.974
5.Hospital stay				
<7	52.42±3.19	24.07±4.73	50.89±8.92	22.33±5.59
7- 14 days	53.33±2.78	23.73±6.17	55.11±1.76	23.33±4.69
>14 days	48±12.73	-	40±19.8	-
P.value	0.231	0.869	0.076	0.600

Independent T- test One way Anova *statistically significant difference at P. value <0.05

VI. DISCUSSION

Critical illness is a life-threatening multisystem process that can result in significant morbidity or mortality. In most patients, critical illness is preceded by a period of physiological deterioration; but evidence suggests that the early signs of this are frequently missed. Critically ill patients with acute kidney injury often have psychiatric difficulties in the form of depression and anxiety.

Depression and anxiety are the most common psychological disorders in hemodialysis patients; the various studies reported its range 25–70 %. Depression underwent all aspects of the life in hemodialysis patients; some of these negative effects are reducing appetite, deteriorating physical power and motivation, impaired in blood urea and potassium, defect in regulation of blood pressure, and failure of supportive treatments ⁽¹¹⁾. Psychological intervention and nursing guidelines can decrease the prevalence of anxiety, depression and improve the psychological outcome in critically ill patients. Therefore the study was done to investigate the effect of nursing guidelines on anxiety and depression among critically ill patients with acute kidney injury and undergoing hemodialysis

Results of the current study revealed that less than half of critically ill patients in both group control and intervention aged between 40 to less than 50 years old. This finding is congruent with the study of Elsayed E, Radwan E, Elashri N, El-Gilany A (2019)⁽¹²⁾ they found that the studied subjects age ranged from 60 to 92 years, older adults aged 60<75 constituted 88.4% of the studied subjects. Regarding **the gender**, the present study show the majority of the study sample

in both group were male, this results on the same lines with Elasyed E (2019)⁽¹²⁾ who reported that the majority of the studied patients undergoing hemodialysis are predominantly males. which concluded that the rate of progression of acute renal disease is more rapid in men than in women and. **Gohzs, (2018)**⁽¹³⁾ who reported that females on hemodialysis were observed to have a tendency of developing anxiety, whereas males develop depression As regards patient medical history more than half of critically ill patients had diabetes mellitus. This agreement with Habas, (2019)⁽¹⁴⁾ who reported the majority of the studied patients on hemodialysis had diabetes mellitus.

Regarding level of anxiety and depression after implementation of nursing guidelines

Anxiety and depression are the most common and important mental disorders among hemodialysis patients,. Decreasing these problems, through application of nursing guidelines such as teaching patient and give information about disease process of acute kidney injury ,hemodialysis purpose and importance and time of hemodialysis session on dialysis machine, emotional support , learning and practicing relaxation techniques and keep the environment quite as possible can be effective for decreasing and controlling patients' problems and provides them with more psychological resources to help them to cope with their physical condition. **Regarding level of anxiety** the present study demonstrates that all patients in control group had severed anxiety level while the majority of patients in intervention group had moderate anxiety level after application of nursing guidelines. There was statistically significant difference between the both groups with p. value =0.001. This result supported with **Andrew, (2018)**⁽⁸⁾ who reported that the majority of patients with acute renal failure and undergoing to hemodialysis had experienced anxiety and depression.

Depression is one of the most and highly common complications of hemodialysis (HD) patients that is associated with many various adverse outcomes, including lower performance status, increased fatigue, decreased physical activity, and decreased quality of life. **Concerning level of depression** the present study revealed that the majority of control group had very severe depression. While nearly half of patients in intervention group had moderate level of depression after application of nursing guidelines. There was statistically significant difference between the both groups with p. value =0.001. This results supported with Chan, (2017)⁽¹¹⁾ who reported that depression is the most common psychological reaction experienced by persons with acute renal failure. The problem is widespread: Studies report that between ten and hundred percent of hemodialysis patients are depressed. Depression can affect the whole body, with symptoms such as loss of appetite, fatigue, insomnia, and difficulty concentrating which overlap the symptoms of uremia.

The same result was found in the study of **Elasyed et al (2019)**⁽¹²⁾ they documented that significant positive improvement was found in total mean score of depression on the studied patients after implementation of Benson's relaxation technique. In this respect **Aghakhani N, Fattahi Y(2019)**⁽¹⁵⁾ they recommended that the awareness of patients through self-care education may be very effective in quality of life improvement in HD patients with lower level of education and economic status, long duration of illness, poor adherence of diet and drugs, having overweight and edema, and other diseases such as hypertension or diabetes that aggravate depression condition in them.

Regarding the mean score percentage of both group level of anxiety and depression after application of nursing guidelines and their characteristics, the current study shows that statistical significant differences between control and intervention group in level of anxiety and relation to their age (P=0.011). This results supported with **Elasyed E (2019)**⁽¹²⁾ they reported that there are significant relation between ages , gender, marital status, economic level, and level of education and mean score of anxiety, depression.

Critical care nurses play a vital role in relieving patients' suffering: they work as mediator between the patient and health team members. Critically ill patients undergoing hemodialysis suffer from, anxiety and depression and experience serious changes in patients hemodynamic during hemodialysis session. It is important to learn how to deal with these issues. For example, following nursing guidelines such as exercise program, relaxation techniques, emotional support and teach patient about a healthy diet, and discussing problems with doctors and other health care providers, including mental health specialists, social workers and others, can go a long way toward addressing physical and emotional challenges.

VII. CONCLUSION

Implementation of nursing guidelines was highly effective in alleviating anxiety, depression in the critically ill patients undergoing hemodialysis. Statistical significant differences between control and intervention group in level of anxiety and relation to their age.

VIII. RECOMMENDATIONS

Based on the findings of the current study the following recommendations are suggested:

Nursing education

- In services training program to all health care providers about the effects of nursing guidelines for the reduction of anxiety and depression for critically ill patients undergoing hemodialysis.

Nursing administration

- There should be policies, procedures and guidelines to decrease the psychological effect of hemodialysis and that focus on creating healing environment.
- Routine patients' assessment for the presence of anxiety and depression should be an integral part of ongoing care in order to detect the effect of hemolysis early to facilitate appropriate intervention to reduce this impact

Nursing research

- Future research should be conducted to identify the best possible practices for prevention of anxiety and depression

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