vol.3 No.1 ISSN:18235-2016

ASSESSMENT OF SEXUAL DYSFUNCTION IN FEMALE PATIENTS ON MAINTENANCE HEMODIALYSIS

Basma Wageah Mohamed[1], Hanan Elsayed Mohamed[1], Wafaa Ismail Shereif[2]

[1]Woman's Health and Midwifery Department Faculty of Nursing Mansoura University,
[2]Surgical Nursing Department Nursing Mansoura University
E-mail of corresponding author:bosy_cat3008@yahoo.com

Abstract:

Background: Sexual dysfunction is considered one of the main problems of end stage renal disease (ESRD) patients.**Study aim** was to assess sexual dysfunction in female patients on maintenance hemodialysis. **A descriptive study design** was utilized in this study. **Study setting**: The study was carried out at the hemodialysis unit of Mansoura New General Hospital from June 2014 to December 2014. **Subjects of study:**Purposive sample was used to collect50 female hemodialysis patients. **Four tools** were used for data collection including a structured interview questionnaire sheet to assess the socio-demographic characteristics and the biochemical & hematological profile of the study group, a good dialysis index score to assess the adequacy of dialysis, the Female Sexual Function Index (FSFI) score to assess the degree of sexual dysfunction and the Beck's Depression Inventory (BDI) to assess depression state of the study group. **The study results** revealed that all of the study subjects had sexual dysfunction with statistically significant correlation with older age and self-reported feeling of being under dialyzed, but no significant correlation was found between depression state, urea reduction ratio, biochemical & hematological profiles and the degree of sexual dysfunction. **Conclusion:**sexual dysfunction is highly prevalent in female hemodialysis patients. **Recommendations:** Increasing awareness about sexual dysfunction in female hemodialysis patients and encourage patients to explore this important aspect of their life.

Keywords :Sexual dysfunction - Female - Hemodialysis.

Introduction:

End-stage renal disease (ESRD) is the stage reached by chronic kidney diseases in which kidneys function is irreversibly lower than 15% of normal function. ESRD is fatal unless some kind of renal replacement is provided (1). In Egypt, the prevalence of end stage renal disease has risen from 225 patients per million populations (pmp) in 1996 to 483 pmp in 2004. The estimated number of patients with end stage renal disease (ESRD) in Egypt was about 18,000 at year 2000 and progressed to reach 33,693 in 2008(2).

Hemodialysis (HD) is the most commonly used method for renal replacement therapy, and often patients on HD have no choice but to continue HD until they undergo a kidney transplant (3).Hemodialysis, although life-saving, is associated with poor survival, a high symptoms burden, and impaired quality of life (4–7). Depression, pain, itching, sleep disturbance, and fatigue are commonly reported by people undergoing maintenance hemodialysis (8–10).

Many studies report that a large proportion of women on chronic dialysis also experience sexual dysfunction (11-14).The etiology of sexual dysfunction in end-stage renal

disease patients includes physiological, psychological, and iatrogenic factors which all contribute to sexual dysfunction (15). Inability to excrete urea and creatinine and the accumulation of toxic materials, renal failure-associated atherosclerosis, anemia, dyslipidemia, hormonal changes and depression, the side effects of medications used in its treatment, and the negative influence of being kept alive on dialysis disturb patients' sexual desire and functioning(16).

Also hypertension, hyperlipidemia, some chronic diseases including diabetes and vascular disease can lead to both ESRD and sexual dysfunction (15-16). Regarding the symptoms of sexual dysfunction in ESRD female patients on hemodialysis, they often complain of decreased sexual excitement and satisfaction, decreased genital engorgement and impaired or absent lubrication which may result in dyspareunia and anorgasmia (16).Psychosocial factors including depression, anxiety, and fatigue may also have a part in this condition (17).

Depressive episodes and marital conflicts are supposedly more frequent in dialyzed patients as compared with the general population, and often lead to the worsening of socioeconomically status. Strong correlation between depression and SD in the general population has been proven. However, this has not been confirmed in dialyzed patients (15).

Despite the high prevalence of sexual dysfunction in women undergoing hemodialysis, a small number of them go for consultation. Seethala et al., 2010(12) showed that despite the importance of sexual issues from the patients' point of view only 21% of them consulted with a specialist and 6% are treated. The authors also found that 80% of the women included in their study had SD. Strippoli et al., 2012(14) designed a cross-sectional study of 659 women receiving chronic hemodialysis reported that 555 participants (84%) had sexual dysfunction

The relationship between SD among female hemodialysis patients and adequacy of hemodialysis has been investigated in a few studies. A recent study by Kim et al., 2014(3)has pointed out that increasing improving hemodialysis adequacy in the form of increasing kt/V to more than the usual recommended dose of 1.4 did not lead to improvement in SD symptoms .

Significance of the Study:

In female hemodialysis patients, sexual problems have often been neglected in clinical performance and research, no many researches has been done in this matter, and Mansoura University does not discuss this issue before so the researcher assesse sexual dysfunction in Female hemodialysis patient.

Aim of study:

The aim of this study was to assess sexual dysfunction in female patients on maintenance hemodialysis

Research Question:

Are females hemodialysis patient suffer from sexual dysfunction?

Subjects and Method:

Study Design:

Descriptive study design was utilized in this study.

Study Settings:

1- This study was conducted at the hemodialysis unitin Mansoura New General Hospital during the period from the beginning of June 2014 to the end of December 2014**.**

Subjects of the Study:

A Purposive sample was used to collect fifty female patients on maintenance hemodialysis at Mansoura New General Hospital in Dakahlia Governorate, Delta Region, Egyptduring the period from the beginning of June 2014 to the end of December 2014. All patients were receiving hemodialysis for three or more months before the start of the study. All patients had no evidence of poorly controlled diabetes mellitus, active psychiatric disease or uncontrolled congestive heart failure at the time of the study.

Tools of data collection:

Four toolswere used in this study:

AStructured interviewing questionnaire schedule : It was developed by the researcher and included two parts; part (1) included socio-demographic characteristics of women such as age, level of education, occupation, marital status, residence, marital status, etc., Also history of patient disease such as primary renal disease, comorbid diseases, onset of chronic renal failure, surgical operation, duration of hemodialysis, medications in use, and complications, etc., and menstrual, obstetrical and gynecological history such as menstrual characteristics, gravidity, parity, mode of delivery, complications during labor and etc. Part (2) included biochemical and hematological data such as hematocrit, WBCs, hemoglobin, albumin, hepatic function, creatinine, phosphorus, urea before and after hemodialysis session ,calcium, bilirubin, iron, ferritin, total iron binding capacity, viral markers, etc. and vital signs such as blood pressure ,respiratory rate, pulse rate & temperature.

Good dialysis index (GDI)Score: Itwas adopted fromKim et al 2014(3) to assess the quality of hemodialysis treatment. It consists of four dialysis key performance indicators; (1) Patient directed questions which included (feeling 'pretty good' about things, fluid intake is free of major restrictions or not, vascular access is a native arteriovenous fistula or not, if dialysis free of cramping, nausea and headache or not, part or full-timeemployed or retired by choice). (2) Process directed questions which included (if she has remained out of hospital for the last 3 months, total dialysis hours/week, mean pre-HD systolic BP, if intra-dialectic saline has been used). (3) laboratory directed question which included (2 months Hemoglobin ≥11 and ≤12.5 g/dl , 2 months pre-hemodialysis CaxPO4 product ≤55 mg/dl , 2 months calcium in normal range and parathyroid hormone ≥2 to ≤4 x normal reference range,2 months albumin ≥ 3.5 g/dl, 2 months

transferrin saturation ≥20% and 2 months CRP normal for the local laboratory). (4) Chart directed question which include (No anti-hypertensive medications are necessary and no phosphate binder medications are necessary). The maximum score is 20 point. If the score is16-20 this means patient has good dialysis, 10-16 this means patient can significantly improve dialysis and if the score is <10 this means patient has poor or unacceptable quality of hemodialysis.

Female Sexual Function Index (FSFI): Itwasadopted from Rosen et al., 2000 (19)to assess sexual function. It is consists of 6 items; desire, arousal, lubrication, orgasm, satisfaction, and pain. The patients were asked to answer the FSFI questionnaire after undergoing HD treatment. This tool has been validated based on diagnosis of desire disorder, arousal disorder, lubrication, orgasmic dysfunction, satisfaction and pain and is intended for patients that have been sexually active in the previous four weeks. The questions are grouped and scored as individual domains: desire (two questions), arousal (four questions), lubrication (four questions), orgasmic (three questions), and satisfaction (three questions), and pain (three questions) in order to get 19 questions to obtain sexual function assessments. Each domain is scored on a scale of 0 to 6, with higher scores indicating better function for each domain. A domain score of zero indicates that the women reported no sexual activity during the previous month and the full score ranges from 2-36. The individual domain scores are totaled and multiplied by a predetermined factor to weigh each domain equally.

Beck's Depression Inventory (BDI): It is adopted fromAsadifard F,et al 2013(23) . It used for measuring the severity of depression. It is composed of 21 questions scored from 0 to 3, each evaluating a specific symptom commonly existing in people with depression. Total scores of 10 or higher indicate depression (10–18)for mild, 19–29 for moderate and more than 30 points for severe depression (20).

Validity of the tool.

A 5 jury from experts in the Obstetric Nursing and medical surgical field tested the content validity; According to expert's suggestions the tool was modified.

Field work:

1. The actual field work of the study was conducted for 6 months period starting on July 1st 2014 and ended on December 31st 2014 to collect the data needed to assess sexual function of female hemodialysis patients.
2. The researcher attended hemodialysis unit 3 days per week from 9 pm to 4 pm (7 hours per day), 21 hour pre week, 84 hours per month, and 504 hours per 6 months .
3. First the researcher introduced herself to patients, took oral consent from them to be recruited in the study after explanation of the aim of the study.

4. During the interview, the researcher read each item of the data collection sheet and explained its meaning to the patients. Patients were allowed to ask any interpretation, elaboration or explanation.
5. The researcher spend almost 50 to 60 minute to every patient to fill data collection sheet.
6. After completion of filling of data collection sheet, the researcher appreciates the patient for her cooperation.

Statistical analysis:

Collected data were coded, computed and statistically analyzed using SPSS software program (statistical Package of Social Sciences) version 16.0. Qualitative categorical variables were presented as frequency and percentage while quantitative continuous variables were presented as mean ± Sd. Chi Square test was used for comparison of categorical variables. Student t test was used to compare quantitative continuous variables in two groups, while one way anova (F test) was used to compare quantitative continuous variables in more than two groups. Statistical significant level was considered at $P \leq 0.05$.

Ethical considerations:

Ethical approval was obtained from research ethics committee of the Faculty of Nursing, Mansoura University and from the head of Nephrology & Hemodialysis department at Mansoura New General Hospital. Oral informed consent was obtained from the participants included in the study sample. They were reassured about the confidentiality of the obtained information and they were informed about their rights to refuse participations or withdraw at any time.

RESULTS:

Patients' characteristics and biochemical parameters:

Table1: Socio-demographic characteristics of the study group:

Items	No	%
Age groups		
< 30 years	1	2.0
30- <50 years	32	64.0
>50 years	17	34.0
Mean age ± SD	46.44 ± 11.14 years	
Residence		
Urban	28	56.0
Rural	22	44.0
Marital period		
< 3 years	3	6.0
≥ 3 years	47	94.0
Education		
Illiterate	25	50.0
Primary	10	20.0
Secondary	9	18.0
University	6	12.0
Occupation		
Worker	1	2.0
House wife	49	98.0
Monthly income		
Inadequate	23	46.0
Enough	24	48.0
More than enough	3	6.0

Socio-demographic characteristics of the women were shown in Table 1. About two third of the study subjects (64%) were aged 30-50 years old with mean age 46.44 ± 11.14 years. More than half of them (56%) were from urban areas. The majority of the subjects (94%) were married for more

than 3 years. Half of the study subjects (50%) were illiterate and almost all of them (98%) were housewives and only half of them (48%) reported having adequate monthly income enough to sustain their needs.

Table2: Biochemical and hematological parameters of the study group:

Items	Reference Range	Mean ± SD
Hematocrit	33-36%	31.59 ± 4.14
Albumin	3.5-5 gm/dl	3.60 ± 0.40
Hemoglobin	10-12 gm/dl	9.06 ± 1.90
SGPT	7-55 IU/L	24.1 ± 18.66
SGOT	8-48 IU/L	24.6 ± 15.41
Creatinine	0.7-1.4 mg/dl	9.34 ± 2.56
Total Bilirubin	0.2-1.9 mg/dl	0.633 ± 0.46
Sodium (Na)	135-145 mEq/L	130.28 ± 4.68
Potassium (K)	3.5-5.5 mEq/L	4.96 ± 0.69
Urea	20-45 mg/dl	131.36 ± 26.25
Calcium (Ca)	8.4-9.5 mg/dl	8.61 ± 0.69
Iron (Fe)	60-170 mcg/mL	45.6 ± 22.76
Ferritin	200-500 ng/ml	1282.8 ± 552.02
Phosphorus	3.5-5.5 mg/dl	4.14 ± 1.30
TIBC	240-450 mcg/dl	109.73 ± 29.44
PTH	150-300 pg./ml	359.72 ± 266.96

Biochemical and hematological parameters of the study subjects are shown in table 2. The most important finding was that the mean serum creatinine and urea levels were high (9.34±2.56 and 131.36±26.25, respectively) compared to the normal reference range as all the subjects included in this study were end stage renal disease patients on maintenance hemodialysis. Also the mean hemoglobin (9.06 ± 1.90) and the mean hematocrit (31.59 ± 4.14) values were below their normal range. The mean calcium (8.61 ± 0.69) and parathyroid hormone levels (359.72 ± 266.96) were outside their normal reference range in hemodialysis patient. The mean value of urea reduction ratio (URR) was estimated to be 65.6%. Concerning hepatitis markers, half of the study group (50%) was hepatitis C virus antibody positive, 4% were hepatitis B surface antigen positive and 46% had negative virology.

Figure 1: Good Dialysis Index score of the study group:

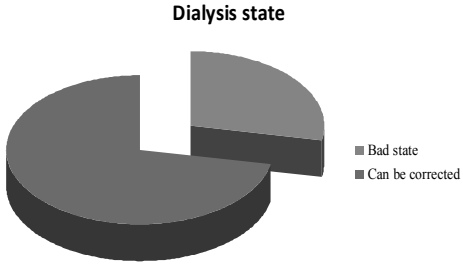

Figure 1: Shows the distribution of the study group according to the good dialysis index (GDI) scores. 72% of the study subjects reported that their dialysis state could be corrected while 28% reported that their dialysis state was bad.

Table 3: Female Sexual Function Index scores:

Items	Standard Range	Patient's Rang	Mean ± SD
Desire Score	1.2 – 6.0	1.2 – 4.2	2.38 ± 0.70
Arousal score	0.0 – 6.0	0.3 – 3.0	1.93 ± 0.66
Lubrication score	0.0 – 6.0	0.0 – 4.5	2.03± 1.10
Orgasm Score	0.0 – 6.0	0.0 – 4.0	1.66± 0.99
Satisfaction Score	0.8 – 6.0	0.8 – 4.8	2.04 ± 0.86
Pain score	0.0 – 6.0	0.0 – 6.0	2.64 ± 1.81
Total Score	2.0– 36.0	3.5– 21.3	12.65± 2.50

Figure 2: Female Sexual Function Indexindividualdomain scores

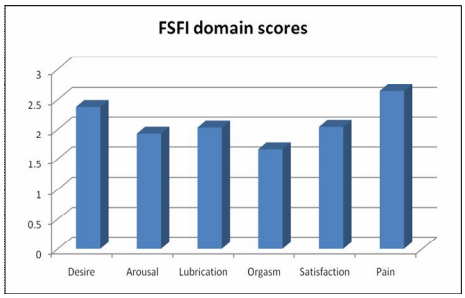

Figure 2: Showthe individual score of each domain and the total scores of the Female Sexual Function Index (FSFI) of the study group are shown in table 3 and figure 2. The most important finding was that the mean value of the total score (12.65± 2.50) was very much lower than the cut-off value used to define female sexual dysfunction (<26.55) as reported by Wiegel et al., 2005 (21) and the highest reported score was much below the cut-off value. This means that all subjects of the study group (100%) had some form or another of sexual dysfunction. It was also noted that all individual domain scores were below their cut-off value for each & every one of the six domains. The lowest individual domain score was found in the orgasm domain (1.66± 0.99) which is very much lower than orgasm domain cut-off value (5.05). The highest average individual domain score was found in the pain domain (2.64 ± 1.81), however this score is also very much lower than pain domain cut-off value (5.51). The other four domains (desire, arousal, lubrication and satisfaction) were all affected with varying degrees of dysfunction.

Table 4: Beck DepressionInventory scores:

Depression state	No	%
Normal (1-10)	0	0.0
Mild mood disturbance (11-16)	7	14.0
Borderline clinical depression (17-20)	17	34.0
Moderate depression (20-30)	20	40.0
Severe depression (31-40)	6	12.0
Extreme depression (>40)	0	0.0
Range and Mean ±SD of the total score	11.0 – 44.0	22.66 ± 6.63

Table 4: Shows the depression state of the study group according to Beck's Depression Inventory (BDI). All of the study subjects reported changes in

their mode and psychological state. Mild mood disturbance were reported in 14% of patients, borderline clinical depression in 34%, moderate depression 40% and severe depression in 12%.

Table 5: Correlation of Female Sexual Function Index scores with socio-demographic characteristics:

General Characteristics	FSFI scores
Age Groups	
< 30 (1)	15.20 ± 0.00
30 – (32)	13.90 ± 2.70
50+ (17)	14.00 ± 3.64
Significance test	F= 8.788, P 0.001
Residence	
Urban (28)	12.31 ± 3.71
Rural (22)	13.08 ± 2.25
Significance test	T= 0.769, P 0.446
Marital period	
1< 3 years (3)	15.77 ± 1.44
≥ 3 years (47)	12.45 ± 3.51
Significance test	T = 1.615, P 0.113
Education	
Illiterate (25)	11.72 ± 3.88
1ry (10)	13.83 ± 2.00
2ndry (9)	14.42 ± 3.31
University (6)	11.13 ± 2.01
Significance test	F= 2.898, P 0.045
Income	
Inadequate (23)	12.55 ± 3.01
Enough+(>Enough) (27)	12.73 ± 3.93
Significance test	t= 0.180, P 0.898
BMI	
Average (9)	12.69 ± 1.99
Overweight (19)	11.98 ± 3.59
Obese (22)	13.21 ± 3.50
Significance test	F= 0.624, P o.540

As shown in **table 5**, the average total scores of the Female Sexual Function Index (FSFI) were significantly different with age and educational groups; being higher in younger and older age group compared to the middle aged group (30<50 years) and higher in primary and secondary educated patients compared to illiterate and university educated. There was no significant change of average FSFI scores with other general characteristics of the study group.

Table 6: Correlation of Female Sexual Function Index scores with Beck's Depression Inventory scores:

Depression State	**Female Sexual Function Index (FSFI) Mean ± SD**	**Significance Test**
Mild mood disturbance (7)	13.31 ± 4.87	F = 1.106 P.356
Borderline depression (17)	13.60 ± 3.36	
Moderate depression (20)	12.10 ± 2.63	
Severe depression (6)	11.02 ± 4.59	

As shown in **table 6**, the average FSFI scores were decreased in relation to the severity of depression state according to the scores of Beck's Depression Inventory (BDI), however the difference was statistically insignificant. No correlation could be confirmed.

Table 7: Correlation between Good dialysis index, Female Sexual Function Indexand Beck's Depression Inventory scores:

GDI Scores	FSFI scores	BDI scores
Bad (14)	12.27 ± 4.47	34.86 ± 7.18
Can be corrected (36)	12.78 ± 3.11	21.81 ± 6.30
Significance test	t= 0.473, P 0.639	t= 1.479, P0.146

As shown in **table 7**, the patients who reported bad dialysis score had lower average score of FSFI than those who reported that their dialysis status could be corrected, while those who reported bad dialysis quality had a higher average score of Beck's Depression Inventory than those who reported that their dialysis status could be corrected, but there was no statistically significant difference.

Discussion:

This study is the first to explore the topic of sexual dysfunction among female patients on maintenance hemodialysis in Egypt. Most patients usually do not discuss this problem with their providers and none of them have ever received any kind of treatment, either psychological or pharmacological. The majority of research on sexual dysfunction in patients with end stage renal disease has focused on men. Although women represent approximately one-half of all patients with ESRD, considerably less attention has been paid to female hemodialysis patients and their sexuality & sexual dysfunction (18).So the aim of this study was to assess sexual dysfunction in female patients on maintenance hemodialysis**.**

In the present study all of patients (100%) had Female Sexual Function Index (FSFI) scores consistent with sexual dysfunction i.e. <26.55 (study subjects' total score range 3.5-21.3). These findings strongly support the research question which was that sexual dysfunction is highly prevalent in female hemodialysis patients. These findings were in accordance with the results from multiple authors that SD is a common problem among female hemodialysis patients with prevalence rates ranging from 30-100% (11-16), (18), and (22).

The individual domain scores arranged from lowest to highest were orgasm, arousal, lubrication, satisfaction, desire and finally pain. Strippoli et al., 2012 reported that the individual domains with the greatest level of dysfunction were arousal (median, 1.8), orgasm (median, 2.0), and desire (median, 2.4), whereas satisfaction (median, 3.6) appeared to be the least impaired domain (14). These results are in concordance with the present study in that orgasm and arousal domains were also the most affected. Also the present study findings were supported by Asadifard et al., 2013(23) who found that 100% of women undergoing hemodialysis had total score of sexual function less than normal. The authors also noted that 39% of their study subjects had sexual desire decrease, 62% had sexual arousal decrease, 52% had vaginal lubrication decrease, 60% had failure

to orgasm, 33% had sexual dissatisfaction and 54% had dyspareunia.

In the present study, all patients were receiving 3 hemodialysis sessions per week and also all of them were regular on their hemodialysis schedule and reported never missing any session. This means they all received the recommended hemodialysis schedule which is thrice/week. The present study results were in the same line with the last report from the Egyptian renal registry by Afifi, 2008 (2)who reported that 96.4% of Egyptian hemodialysis patients received hemodialysis three times weekly. Within the same line, the mean URR value was estimated to be 65.6%. This value is just above the adequate URR required to achieve adequate hemodialysis session which is ≥ 65% as recommended by the KDOQI guidelines (24). This means that all of the study subjects met the minimum requirement for hemodialysis efficiency.

In relation to the biochemical parameters of the study subjects it was found that the albumin, potassium and phosphorus values were all within their normal reference range. This would imply that the present study subjects were receiving a good dialysis treatment with good nutritional status despite the fact that all of them reported sexual dysfunction. This can mean that dialysis adequacy has no relation to the degree of sexual dysfunction. These findings were supported by the findings of the studies of Mor et al., 2014 (25) &Strippoli et al., 2012 (14)who reported that the biochemical parameters of their study subjects (i.e. albumin, calcium, phosphorus & potassium) were all in normal ranges despite the high prevalence of sexual dysfunction in their study groups which included hemodialysis female patients. Also the women who reported bad dialysis score had lower average score of FSFI than those who reported that their dialysis status could be corrected, but the difference was statistically insignificant. Also Peng et al., 2005(11).Also reported that adequacy of dialysis was not associated with sexual dysfunction. Higher Kt/V than 1.2 does not prevent sexual dysfunction in female hemodialysis patients.

The current study findings were also supported by Kim et al., 2014 who designed a preliminary study about the association between the hemodialysis adequacy and sexual dysfunction in chronic renal failure and showed that no correlation existed between adequacy of dialysis and the symptoms of female sexual dysfunction (3).

Regarding to depression state of the study subjects, the present study findings revealed that all the study subjects reported changes in their mode and psychological state ranging from mild depression to severe depression. These study finding were supported by the study of Armaly et al., 2012(26).On “major depressive disorders in hemodialysis patients” who reported that the prevalence of depression was 43.7% in hemodialysis patients. However, these study findings were in disagreement with the

finding of Santos, 2011(27)study on "depression and quality of life in poor hemodialysis patients in Brazil" who found that only one tenth of the patients had depression symptoms. This difference may be due to the use of different tools for assessment of depression and also the different socio-economic circumstances and cultural background.

Regarding to the relationship between general characteristics of the study group, Female Sexual Function Index (FSFI) scores and Beck's Depression Inventory (BDI) scores, the current study findings revealed that the average total scores of the Female Sexual Function Index (FSFI) were significantly different with age and educational groups; being higher in younger and older age group compared to the middle aged group (30<50 years) and higher in primary and secondary educated patients compared to illiterate and university educated, while there was no significant change of average FSFI scores with other general characteristics of the study group. Also, Beck's Depression Inventory average total scores had significant changes at different ages and educational groups; being higher in older age group compared to the middle aged group and younger ones and higher in illiterate, university then primary compared to secondary educated patients, while there was no statistically significant change of its average scores with other general characteristics of the study group.

These current study findings were in agreement with the findings of Strippoli et al., 2012(14) who found that sexual dysfunction was independently associated with older age, depressive symptoms and less education. It was in disagreement with the findings of Kettas et al., 2008(16) who found that there was no significant correlation between educational status, economic status and sexual dysfunction in women on maintenance hemodialysis.

As regard the relationship between dialysis scores, Female Sexual Function Index (FSFI) scores and Beck's Depression Inventory (BDI) scores, it was found that the patients who reported bad dialysis score had lower average score of FSFI than those who reported that their dialysis status could be corrected, while those who reported bad dialysis quality had a higher average score of Beck's Depression Inventory than those who reported that their dialysis status could be corrected, but the difference was statistically insignificant.

These findings were in agreement with Kim et al., 2014(3) who found no significant correlation between adequacy of dialysis and the degree of sexual dysfunction. It was also in agreement with Peng et al., 2005(11) who found no correlation between adequacy of dialysis and the degree of depression symptoms. On the other hand, the current study findings were in disagreement with Santos et al., 2011(1)who reported that quality of life and the degree of depressive symptoms were related to the adequacy of dialysis in women with ESRD.

In the present study, no statistically significant relation was found between the Female Sexual Function Index (FSFI) scores and Beck's Depression Inventory (BDI) scores. The degree of depressive symptoms did not correlate with degree of sexual dysfunction. This means that sexual dysfunction in women on hemodialysis may be related to the patients perception of the nature of their disease and them being on renal replacement therapy but not their depression state. The current study findings were supported by Seethala et al., 2010(12)who found no association between sexual dysfunction and depression or quality of life. On the other hand, these finding were in contrast to the findings of Peng et al., 2005(11)who reported that the degree of depressive symptoms was directly related to the degree of sexual dysfunction in female hemodialysis patients.

Conclusion:

The findings of the present study highlighted the high prevalence of sexual dysfunction among female patients with end stage renal disease on hemodialysis. Sexual dysfunction was mostly related to older age and self-reported feeling of being under-dialyzed. The degree of depressive symptoms and the adequacy of dialysis treatment did not correlate significantly with the degree of sexual dysfunction.

Recommendation:

- Female patients on hemodialysis should be encouraged to express their feelings and perceptions of their sexuality through an open and candid relationship with their female dialysis nurses in order to properly assess their dialysis state and its relationship to their sexual life.
- Self-reported questionnaires such as the Female Sexual Function Index (FSFI)
- Should be implemented to evaluate the presence of sexual dysfunction among female hemodialysis patients.
- Increasing awareness among healthcare providers especially dialysis nurses and encourage them to question about and investigate the presence of sexual dysfunction among hemodialysis patients.
- Finally, large scale multi–center studies on sexual dysfunction in hemodialysis patient are needed to establish the true prevalence, cause and effect of sexual dysfunction among female hemodialysis patient in Egypt.

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