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RESEARCH ARTICLE

EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON WOMEN WITH DYSPAREUNIA

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ABSTRACT

**Background:** Female dyspareunia is a sexual dysfunction manifested as pain in reproductive organs combined with sexual intercourse. It can alter a woman's sense of sexual competency and identity.

**The study Aimed:** At identifying risk factors to dyspareunia and evaluates the effect of cognitive behavioral therapy (CBT) on women with dyspareunia.

**Subjects and Methods:** A quasi experimental study (A pre-post-test) was used. The study was conducted at two Maternal and Child health centers (MCH) and family planning out-patient clinics (FPOC) teaching hospital at Shebin-El-Kom - Egypt. Subjects consisted of 200 women (100 cases of dyspareunia and controls) to detect the risk factors of dyspareunia. The 100 cases with dyspareunia received.

**CBT:** The cases were followed up for 12 weeks. Five tools were used to collect pertinent data.

**Results:** This study revealed that, the mean maternal age of the women with dyspareunia were 24.74±4.01. Most of them with dyspareunia were had intermediate level of education (60%), were lived in rural community (78%) and not had enough income (56%). The common risk factors for dyspareunia were related to demographic, reproductive and obstetric history. There was statistically significant difference of women with dyspareunia before and after receiving CBT therapy regarding sexual performance, marital relationship, and psychological status and severity of sexual pain.

**Conclusion:** CBT is an effective therapy in managing dyspareunia for improving sexual performance, marital relationship particularly with their husbands, psychological status and eliminating pain.

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INTRODUCTION

Sexual dysfunction is highly prevalent disorder among women in today's society. Dyspareunia (painful sexual intercourse) is a recurrent or persistent acute pain associated with attempted or complete vaginal entry and/or penile vaginal intercourse (Sobhgo, 2007). The clinical importance of pain during intercourse is increasingly recognized, lack of consensus still prevails concerning the etiology of this distressing female sexual health problem (Desrochers *et al.*, 2008). There is almost no controversy today concerning the classification of dyspareunia as a sexual dysfunction. Both the Diagnostic and Statistical Manual of Mental Disorders American Psychiatric Association, (2013) and the International Classification of Disease include dyspareunia in their sections on sexual dysfunction (Binik, 2005). A worldwide prevalence of chronic pelvic pain in systematic review is reported that, the rate of dyspareunia ranges between 8 and 21.8% (Ferrero *et al.*, 2008). On the other hand, twenty-six percent of female patients at sexology outpatient clinics in the Netherlands received treatment for dyspareunia, which makes it the most

prevalent problem at Dutch sexology outpatient clinics (Kedde *et al.*, 2011). In Egypt 31.5% of women were suffered from dyspareunia (El-nashar *et al.*, 2007). A recent study conducted at Mansoura city and studied the effect of sexual counseling program on pain level and sexual function among women with dyspareunia revealed that 27.3% of the study sample complained with dyspareunia and their age was ranged between 20- 45 years (Mansour *et al.*, 2014).

Two types of dyspareunia are distinguished; pain felt deep inside the pelvis during penile thrusting (deep dyspareunia), and pain experienced at the vaginal introitus (i.e., superficial dyspareunia). The vast majority of symptomatic women reports superficial dyspareunia (Burner, 2009). The causes of dyspareunia may be mixed between physiological and psychological, interpersonal and socio-cultural causes: The common physical causes of dyspareunia include interstitial cystitis, irritable bowel syndrome, pelvic inflammatory disease, chronic pelvic pain, and endometriosis. Also, diseases as diabetes, thyroid disease diseases of heart, liver, and /or kidney disease, pelvic surgery, pelvic injury or trauma, neurological disorders, medication side effects, alcohol or drug abuse and fatigue (Meana *et al.*, 2009). Psychological causes could result from fear of pain, interpersonal disturbance,

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sexual abuse, stress or anxiety from work or family responsibilities, concern about sexual performance, conflicts in the relationship with partner, depression/anxiety, unresolved sexual orientation issues, previous traumatic sexual or physical experience, body image and self-esteem problems (Desrochers *et al.*, 2009).

### Interpersonal Relationship Causes May Include

Partner performance and technique, lack of a partner's relationship quality and conflict and/ or lack of privacy. *Socio-cultural influence causes may include:* inadequate education, conflict with religious, personal, or family values and societal taboos (Desrochers *et al.*, 2009). CBT was used in previous studies for pain and sexual dysfunction to enable patients to: reconceptualize genital pain as a multidimensional pain problem influenced by a variety of factors including thoughts, emotions, behaviors and couple interactions; modify those factors associated with pain during intercourse with a view to increasing adaptive coping and decreasing pain intensity; improve the quality of their sexual functioning and consolidate skills (Masheb *et al.*, 2009). Preliminary evidence about sexual communication suggests that it may be poorer. Thus, there is a need for controlled studies of women with dyspareunia and their partners, examining their relationship and psychological and sexual well-being using validated measures (Pazmany *et al.*, 2014). The nurse is an ideal member of the health team to counsel, consult, managed patients in the sensitive and highly charged area of human sexuality. The management of dyspareunia should include a comprehensive, systemic and multidisciplinary approach. The research is being undertaken internationally to develop evidence based methods for management (McCall *et al.*, 2010).

### Significant of the study

Despite growing public and medical awareness concerning the importance of healthy female sexuality, women with dyspareunia are often still caught in an insidious biopsychosocial pain cycle that is not adequately addressed by health professionals (Graziottin and Brotto, 2004). Studies showed that dyspareunia not only disrupts each phase of the female sexual response cycle, but also many important aspects of daily functioning, such as dyadic adjustment, psychological wellbeing, and quality of life (Farmer and Meston, 2007).

### Aim of the Study

The current study aimed at identifying associated factors to dyspareunia. Evaluates the effect of cognitive behavioral therapy (CBT) on women with dyspareunia including (sexual performance, marital, pain and socio-psychological adjustment).

### Research hypothesis

Women exposed to CBT exhibit mild degree or complete relief of sexual dysfunction including pain-related dyspareunia. Women exposed to CBT exhibit mild degree or complete alleviating of marital /psychological maladjustment.

## MATERIALS AND METHODS

**Study design:** A quasi-experimental design study was used.

**Study Setting:** The study was conducted at two Maternal and Child health centers (MCH) at Shebin Elkom city and family planning out-patient clinics (FPOC) at Shebin-El-Kom teaching hospital- Egypt.

### Subjects

The sample was a purposive non- probability sample composed of 200 women. As the researcher had the conscious selection of the subjects (pick up a target population).

### The Sample was Divided into Two Groups

**Group 1:** Hundred women suffered from dyspareunia and received CBT therapy.

**Group 2:** women did not suffer from dyspareunia and attended MCH centers for receiving routine family planning and gynecological care only.

**Inclusion Criteria:** All recruited women were at reproductive age (15-45) yrs, diagnosed with dyspareunia (superficial & deep), were sexually active.

**Exclusion Criteria:** Pregnancy, vaginismus, gynecological tumor (vaginal, cervical and uterine). Also, presence of major medical and/or psychiatric illness. Antidepressants, high blood pressure, medications including sedatives and anti-histamines.

### Study Measures

**Tool I:** A Structured interviewing questionnaire which included the following data:

**A-** Basic data of studied women including age, duration of marriage, education, occupation and residence, income, characteristics of current dyspareunia .....

**B-** Menstrual / obstetric / and contraceptive history

**C-** Present & past history about reproductive tract infection and abuse history

**D-** Data about social and psychological effects of dyspareunia.

**Tool II:** Numeric Pain Intensity Scale (National Institutes of Health, 2003): The 0 to 10 pain scale is commonly and successfully used to assess the degree and severity of pain. The values on the pain scale correspond to pain levels as follows: 1 – 3 = mild pain,

4 – 6 = moderate pain, 7 – 10 = severe pain.

**Tool III:** Female Sexual function index (FSFI) (Rosen *et al.*, 2000)

It is a brief, multidimensional self-report instrument for assessing the key dimensions of sexual function in women. Total score of the scale ranged from 0-94. It was classified into

three levels as the following: Bad level scored (0-31) Moderate level scored (32-63) Good level scored (64-94).

**Tool IV:** Marital adjustment scale (Locke and Wallace, 1959): the total score of marital adjustment scale ranged from 1-32 .It was classified into three levels as the following: Bad level of adjustment scored (1-10) .Moderate level of adjustment scored (11-21). Good level of adjustment scored (22-32).

**Tool V:** Self-esteem scale (Rosenberg, 1965): The Rosenberg Self-Esteem Scale, is a widely used self-report instrument for evaluating individual self-esteem. Self-esteem levels were classified into three levels as the following: Low (10-19), Moderate (20-29), and High (30-40).

**Tool VI:** Anxiety scale (Hamilton, 1959): it used to assess the severity of symptoms of anxiety. The researchers chose 2 questions only. Each item was scored on a scale of 0 (not present) to 4(severe), higher scores indicate higher self-esteem. The severity of anxiety was classified into three levels as the following: Mild (<17)), Mild to Moderate level (18-24), Moderate to severe (25-30).

**Validity:** The validity of the tools was ascertained by a group of subject area experts, medical and nursing staff who reviewed the instruments for content accuracy. Also, they were asked to judge the items for completeness and clarity. Suggestions were considered and modifications were made.

**Reliability:** Test – retest reliability was applied by the researcher for testing the internal consistency of the tools. It refers to the administration of the same tool to the same subjects under similar conditions on two or more occasions. Scores from repeated testing were compared.

#### Pilot Study

Pilot study was carried out before starting data collection; this was done to estimate the time required for filling out the sheets and also to check the clarity, applicability, relevance of the questions. The pilot study was conducted on 20 subjects and then they were excluded from the total sample. Based on the results of the pilot study, the necessary modifications were carried out.

**Administrative approval:** necessary approval from MCH authority was taken after issuing an official letter from the dean of Faculty of Nursing, Menofia University.

**Ethical considerations:** an informed consent to participate in the current study was taken after the purpose of the study was clearly explained to each woman. Confidentiality of obtained personal data, as well as respect of participants' privacy was totally ensured. A summary of the intervention was explained to each woman before volunteering to participate in the study and women were informed that they can withdraw from the study at any time. No invasive procedure was required. The filed work and procedure:

**Step 1:** Interview and Data collection: Women that came to MCH centers to receive the needed and family planning care whom fulfilled inclusion criteria are recruited by researchers to collect data after informed consent were obtained, according to

data collected and diagnosis of obstetric physician, those women were classified into 2 groups, group 1: woman suffering from dyspareunia, Group 2: women did not suffer from dyspareunia.

**Step 2:** Framework schedule: the researchers explained to women whom diagnosed of having dyspareunia and willing to be volunteer in the study the aim of the study , scheduled the times and frequency for visits at her home to assure adherence to the CBT therapy.

**Step 3:** Implementation of CBT: The intervention including CBT components related- dyspareunia was performed after filling of questionnaire at the interview setting.

#### CBT Components

**A:** *The Correction of Misconceptions* (LoPiccolo, 1983).

**B:** *Graded Sexual Assignments* (Wolpe, 1958)

**C:** *Psychosexual behavioral-related dyspareunia* (Graziottin, 2006).

**Encourage self-contact, self-awareness:** encourage active for play, to maintain and/or increase libido, arousal and possibly clitoral orgasm, by delaying penetration until the woman feel fully aroused with specific prohibition of coital attempts until the pelvic floor is adequately relaxed and the women is willing and able to accept intercourse

**Switch positions:** the sharp pain during thrusting, the penis may be striking the women's cervix or stressing the pelvic floor muscles, causing aching or cramping pain. Changing positions may help. The woman try being on top of her husband during sex. Women usually have more control in this position, so she may be able to regulate penetration to a depth that feels good.

**Use lubricants:** A personal lubricant can make sex more comfortable.

Distraction techniques focusing on sexual imagery.

**Pelvic floor exercise (Kegel's exercise):** the woman learned a periodic vaginal relaxation exercises followed by contraction that can decrease pain. Teach how to command the pelvic floor muscles and to control the ability to do so with a mirror.

**Step 3: Follow up:** women with dyspareunia were followed up (4 times over 12 weeks) throughout home visits at the subject's homes if they were located at the same sector around the MCH centers area. If they located away in villages follow Shebin Elkom, they were followed up by telephone to assure the adherence of the CBT therapy.

**Step 4: Evaluation phase:** post intervention data were collected at the end of follow up period

#### Statistical analysis

The collected data were organized, tabulated and statistically analyzed using SPSS software version 13. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparison between two groups and more

was done using Chi-square test ( $\chi^2$ ). For comparison between means of two groups of parametric data of independent samples, student t-test was used. For comparison between means of two related groups (before & after intervention) of non-parametric data, Z value of Wilcoxon Signed Ranks Test was used. Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance. To predict the presence or absence of dyspareunia among women based on a set of predictor variables logistic Regression was done. Binary logistic regression coefficients (B) are calculated and used to estimate Odds ratios (EXP (B) for each of the independent variables as risk factors for dyspareunia (Dawson and Trapp, 2001).

## RESULTS

Table 1 represented a comparison between women with dyspareunia and women without dyspareunia regarding their socioeconomic characteristics. As inferred from the table, that the mean maternal age of the women with dyspareunia were  $24.74 \pm 4.01$  compared to  $25.77 \pm 4.68$  of women without dyspareunia. There were statistically significant difference between the two groups regarding level of education, residence and income. Most of women with dyspareunia were had intermediate level of education (60%), were lived in rural community (78%) and not had enough income (56%).

**Table 1. Demographic data of studied women with and without dyspareunia (N=200)**

Demographic data	Women with dyspareunia (n=100) %	Women without dyspareunia (n=100) %	$\chi^2$	P
•Age (years):				
Range	18-37	19-42		
Mean±SD	24.74±4.01	25.77±4.68		
t-test		1.672		
P		0.096		
•Residence:				
Rural	78	62	6.095	0.014*
Urban	22	38		
•Job:				
Working	36	44	1.333	0.248
House wife	64	56		
•Duration of current marriage (years):				
Range	1-15	1-20		
Mean±SD	4.76±3.65	5.22±4.14		
t-test		0.833		
P		0.406		
•Educational level:				
Illiterate	4	8	9.905	0.019*
Read & write	16	8		
Intermediate education	60	48		
High education	20	36		
•Monthly income:				
Not enough	56	40	4.510	0.034*
Enough	44	60		

\*Significant (P<0.05)

**Table 2. Menstrual and obstetric history of studied women with and without dyspareunia (N=200)**

Variables of reproductive history	Women with dyspareunia (n=100) %	Women without dyspareunia (n=100) %	$\chi^2$	P
•Pain during menstruation:				
Yes	58	52	0.727	0.394
No	42	48		
•Regulatory of menstruation:				
Regular	46	40	0.734	0.39
Irregular	54	60		
•Current usage of family planning				
Yes	72	68	0.211	0.463
No	28	32		
-If yes, type of FP methods				
IUD	46	32	11.480	0.022*
Combined pills	8	22		
Progestin only pills	13	10		
Norplant	2	0		
Injectable contraceptive.	3	4		
•Method of delivery:				
No	10	8	12.022	0.002*
Normal	60	38		
CS	30	54		
•Occurrence of episiotomy:				
No	65	84	8.530	0.003*
Yes	35	16		
•Occurrence of laceration:				
No	64	86	11.762	0.0006*
Yes	36	14		
•History of breast feeding:				
No	28	48	7.662	0.006*
Yes	72	52		

No statistically significant difference was revealed between the two groups regarding job and duration of current marriage. Most of women with dyspareunia were house wives (64%). Table 2 represented a statistically significant differences between two groups regarding method of delivery, occurrence of episiotomy, occurrence of laceration, history of breast feeding and type of family planning method used ( $P < 0.05$ ).

Meanwhile there was no significant differences between two groups regarding pain during menstruation, regulatory of menstruation, current usage of family planning methods. Table 3 revealed a comparison between two groups regarding occurrence of reproductive tract infections (UTI), it showed statistically significant difference between groups regarding occurrence of vaginitis, abnormal vaginal discharge, vaginal dryness, vaginal itching, cervical erosion ( $P < 0.0001$ ).

**Table 3. History of reproductive tract infection (RTI) and abuse of the studied women (with and without dyspareunia) (N=200)**

Items	Women with dyspreunia (n=100) %	Women without dyspreunia (n=100) %	$\chi^2$	P
<b>I: Reproductive Tract Infection (RTI):</b>				
▪Vaginitis:				
Yes	74	52	9.464	0.002*
No	26	48		
▪Cervicitis:				
Yes	20	12	2.381	0.123
No	80	88		
▪Urinary tract infection (UTI):				
Yes	30	38	1.426	0.232
No	70	62		
▪Abnormal vaginal discharge:				
Yes	66	42	0.092	0.013*
No	44	58		
▪Vaginal dryness:				
Yes	48	30	6.810	0.009*
No	52	70		
▪Vaginal itching:				
Yes	54	3	5.153	0.023*
No	46	62		
▪Cervical Ulcer or erosion:				
Yes	17	2	13.085	0.0001*
No	83	98		
▪History of cautery treatment:				
Yes	16	2	11.966	0.001*
No	84	98		
<b>II: Abuse exposure:</b>				
▪Childhood abuse:				
Yes	58	25	21.092	0.0001*
No	42	75		
▪After marriage abuse:				
Yes	61	21	31.443	0.0001*
No	39	79		

\*Significant ( $P < 0.05$ )

**Table 4. Binary logistic regression analysis of demographic data, obstetric, reproductive history as predictive factors for dyspareunia among studied women (N=200)**

Items	B	SE	P	Exp (B)	95% confidence interval (CI) for Exp (B)	
					Lower limit	Upper limit
<b>I: Demographic data</b>						
▪Age	0.214	0.105	0.042*	1.23	1.008	1.521
▪Residence	1.204	0.432	0.005*	0.300	0.129	0.700
▪Work	0.310	0.407	0.445	0.733	0.330	1.627
▪Duration of marriage	0.172	0.119	0.149	0.842	0.667	1.064
▪Education level	0.400	0.254	0.115	0.670	0.408	1.102
▪Income	1.021	0.466	0.028*	2.775	1.113	6.916
<b>II: Obstetric history</b>						
▪Age of menarche	0.234	0.172	0.173	0.791	0.565	1.108
▪Pain of menstruation	0.251	0.536	0.639	1.286	0.450	3.673
▪Regulatory of menses	0.319	0.511	0.533	0.727	0.267	1.980
▪No. of abortion	0.676	1.102	0.540	0.509	0.059	4.413
▪Method of delivery	0.965	0.414	0.020	2.624	1.166	5.908
▪Episiotomy	1.390	0.622	0.025*	4.016	1.186	13.601
▪Laceration during delivery.	3.412	0.951	0.0001*	30.334	4.708	195.457
▪Breast feeding	0.953	0.403	0.018*	2.594	1.178	5.71
<b>III: Reproductive health</b>						
▪Vaginitis	0.898	0.485	0.064	2.456	0.9508	6.350
▪Cervicitis	0.206	0.516	0.689	1.229	0.447	3.375
▪Urinary tract infection	0.630	0.454	0.165	0.533	0.219	1.296
▪Vaginal dryness	0.965	0.357	0.007*	2.625	1.305	5.280
▪Vaginal itching	1.204	0.605	0.047*	3.332	1.019	10.900
▪Abnormal vaginal discharge.	1.593	0.563	0.005*	0.203	0.067	0.613
▪Cervical ulcer	1.762	0.849	0.038*	5.826	1.102	30.793
▪History of cautery	1.128	0.864	0.191	3.091	0.569	16.798

B=Logistic Regression Coefficient; SE=Standard Error of B; P=Significance; Exp (B)=Estimated Odds Ratio; \*Significant ( $P < 0.05$ )

Meanwhile, there was non statistically significant difference regarding occurrence of cervicitis, UTI. The same table also shows statistically significant difference between dyspareunia and dyspareunia free women regarding abuse exposure ( $P<0001$ ). 58 % of women with dyspareunia exposed to abuse during childhood and 61% of them exposed to abuse during marriage. Table 4 the analysis by using a Binary logistic regression of demographic data, obstetric, reproductive history as predictive factors for dyspareunia among studied women. This table revealed that age, residence, work, income, episiotomy, laceration during delivery, breast feeding, vaginal dryness, vaginal itching, abnormal vaginal discharge and cervical ulcer were common predictors/risk factors for occurrence of dyspareunia in the current study.

Table 5 represented the characteristics of dyspareunia among studied group, it showed (44%) had dyspareunia at beginning of vaginal introitus, 24% of women had dyspareunia every times, 32% of women complained of dyspareunia were used man on the top position. 33% of women complains of dyspareunia at postpartum period. The most reported cause of dyspareunia (51%) were lack of foreplay prior intercourse from their husbands, while reported cause related to infection of reproductive tract was (34%). Table 6 this table showed, the social effects of dyspareunia among studied women before and after intervention. There was statistically significant difference of women on their relation with husbands before and after intervention. Table 7 as notified, the higher mean score 56.82 & 25.87 among studied women were had a good level of sexual performance and marital adjustment after intervention i.e. there were improvement, the difference was significant.

**Table 5. Characteristics of dyspareunia among studied women (N=100)**

Variables	The studied women with dyspreunia (n=100) %
• When dyspareunia occur:	
At the onset of vaginal introitus	44
At the middle of vagina	38
At the end of vaginal introitus	10
All the above	8
•Frequency of dyspareunia:	
Every time	24
Sometimes	76
•Position of intercourse which pain occurs:	
Man-on-top	32
Woman-on-top	20
Side-lying	28
Cross –wise	20
• How long the women complain dyspareunia:	
From beginning of marriage	58
Postpartum	33
After menstruation	9
• Causes of dyspareunia ( self reported)	
No Foreplay prior intercourse	51
Psychological factors	15
Infection of reproductive tract	34

\*Significant ( $P<0.05$ )

**Table 6. Social effects of dyspareunia among the studied women before and after intervention with CBT therapy (N=100)**

Social effects of dyspareunia	The studied women with dyspreunia before and after intervention with CBT therapy (n=100)		$\chi^2$	P
	Before (n=100) %	After (n=100) %		
•Effects on family and work:				
Bad	52	49	0.180	0.671
Good	48	51		
• Effects on house work:				
None	65	64	0.21	0.810
Mild bad	26	29		
Moderate bad	9	7		
• Effects on relation with others:				
None	40	47	2.008	0.571
Mild bad	42	39		
Moderate bad	10	10		
Worst	8	4		
• Effects on relation with children:				
None	41	52	3.262	0.353
Mild bad	49	41		
Moderate bad	9	7		
Worst	1	0		
• Effects on relation with husband:				
None	24	50	24.411	0.0001*
Mild bad	27	32		
Moderate bad	14	7		
Worst	35	11		

\*Significant ( $P<0.05$ )

**Table 7. Sexual performance scores, maternal adjustment scale and pain of the studied women with dyspareunia before and after intervention with CBT (N=100)**

Items	The studied women with dyspareunia before and after intervention with CBT (N=100)		$\chi^2$	P
	Before (n=100) %	After (n=100) %		
▪Level of sexual performance (0-94)				
Bad (0-31)	14	7	13.20	0.001*
Moderate (32-63)	73	59		
Good (64-94)	13	34		
Range	17-79	22-91		
Mean±SD	47.60±14.99	56.82±15.93		
Paired t-test	18.198			
P	0.0001*			
▪ Pain Severity of dyspareunia (0-94)				
Mild	28	14	10.232	0.006*
Moderate	46	35		
Severe	26	16		
Range	1-3	0-3		
Mean±SD	1.98±0.74	1.53±0.93		
Paired t-test	6.413			
P	0.0001*			
▪Maternal adjustment scale (1-32)				
Bad (1-10)	5	0	13.464	0.001*
Moderate (11-21)	38	21		
Good (22-32)	57	79		
Range	10-31	14-32		
Mean±SD	22.55±6.05	25.87±5.28		
Paired t-test	15.861			
P	0.0001*			

\*Significant (P&lt;0.05)

**Table 8. Anxiety and self esteem scales of the studied women with dyspareunia before and after intervention with cognitive-behavioral therapy (N=100)**

Items	The studied women with dyspareunia before and after intervention with cognitive-behavioral therapy (n=100)		$\chi^2$	P
	Before (n=100)	After (n=100)		
▪Level of anxiety (0-30) :				
None anxiety (0)	50	65	8.791	0.032*
Mild ( $\leq 17$ )	10	14		
Mild to moderate (18-24)	30	17		
Moderate to severe (25-30)	10	4		
Range	0-28	0-24		
Mean±SD	10.69±11.26	5.66±7.70		
#Z value	3.229			
P	0.001*			
▪Self-esteem scale levels(10-40) :				
Low (10-19)	14	7	8.232	0.015*
Moderate (20-29)	86	87		
High (30-40)	0	6		
Range	18-27	18-35		
Mean±SD	21.33±1.86	24.94±3.02		
Paired t-test	11.895			
P	0.0001*			

\*Significant (P&lt;0.05) #Z value of Wilcoxon Signed Ranks Test

Regarding pain severity, it was 25.87 after intervention compared to 22.55 before intervention. It means, there was a slight improvement in pain related dyspareunia the difference was significant. As notified from Table 8, there was statistically significant difference between pre and post intervention regarding scores of anxiety level, and self-esteem scale. The mean score of anxiety level was decreased after intervention; it was 5.66 compared to 10.69 before intervention i.e. the anxiety level was decreased. Regarding self – esteem level, the mean score was increased (24.94) after intervention while it was 21.33 before intervention. The self-esteem of studied subjects was improved.

## DISCUSSION

### Basic data and risk factors of dyspareunia

The sexual pain disorders including dyspareunia are highly prevalent yet misunderstood women's sexual health problems (Bergeron *et al.*, 2010). To determine the associated factors related to dyspareunia, a comparison between women with dyspareunia and women without dyspareunia was done. As inferred from the Table 1, that the mean maternal age of the women with dyspareunia were 24.74±4.01. Also, the present study, revealed a statistically significant differences between

two groups regarding age Table 4. This was congruent with, Yaniris *et al.* (2009) who studied dyspareunia in Puerto Rican middle-aged women found that dyspareunia was lower among women aged 40–49 years (17%) than among those aged 50–59 years (21%). On the other hand, Laumann *et al.* (1999) studied sexual dysfunction in the US: They reported; age as an important factor for sexual dysfunction. They mentioned that with increasing age, the prevalence of dyspareunia decreased. But, Sobhgol *et al.* (2007) didn't find any relation between age and dyspareunia and ascertain that, data on age and its relation to dyspareunia are rare and different. The present study revealed a statistically significant difference between groups regarding educational level and income; more than half of women with dyspareunia have intermediate education and didn't have enough income. The findings of the present study was almost similar to the study done by Dean *et al.* (2014) who studied dyspareunia in women and found that significant risk factors and predictors for dyspareunia include education level below a college degree and a decrease in household income. Meanwhile, Sobhgol *et al.* (2007) did not find any relation between employment status and dyspareunia. Regarding mode of delivery, the present study findings revealed that, most of women with dyspareunia had vaginal delivery and nearly one third of them had episiotomy.

This result was matching with previous study done by Khajehei (2009) who studied sexual outcomes in primiparous women experiencing vaginal and caesarean births and reported that all of the women who had a vaginal delivery underwent a mediolateral episiotomy and most of them had dyspareunia than others bearing C/S. The women in the C/S group resumed their postpartum sexual activities much sooner than those who had experienced NVD/episiotomy. On the same line Solana-Arellano, *et al.* (2008); Williams *et al.* (2007) proved the relationship between episiotomies and dyspareunia, Meanwhile Conolly, *et al.* (2005) reported that despite the very common sexual problems after childbirth, sexuality was not significantly associated with delivery type or episiotomy. Regarding perineal tear, the woman with dyspareunia had perineal tear more than women without dyspareunia, the finding of present study was similar to findings of study that evaluated the prevalence and the causes for postpartum dyspareunia referred primarily to obstetric trauma, such as vaginal tears (Meir Medical Center, 2012). But regards breast feeding. The finding was similar to Khajehei (2009) who found that, women who breastfed their infants were less interested in starting intercourse.

Physiologic changes that occur during the postpartum period, such as a decrease in some of the sexual hormones like estrogen and androgens, affect the sexual response cycle. Shah (2010) studied contraception and sexuality and stated that progesterone only method can in small numbers decrease libido and cause vaginal dryness consequently dyspareunia. This result was in line with our finding that the most common methods used by women with dyspareunia were using loop and progesterone only pills. A significant association between vaginitis and occurrence of dyspareunia was found. In congruence with present study findings, Pallavi *et al.* (2006) who studied factors predisposing women to chronic pelvic pain, they found that dyspareunia was more common in

women who had pelvic inflammatory disease. A significant association was found between abuse either during child hood or marriage and occurrence of dyspareunia. these findings was congruent with findings of study conducted by Leclerc *et al.* (2010) who studied history of sexual and physical abuse in women with dyspareunia: association with pain, psychosocial adjustment, and sexual functioning and reported that presence of a sexual abuse history in women with dyspareunia is associated with increased psychological distress and sexual impairment. About half of the studied women had dyspareunia during intercourse at beginning of vaginal introitus with moderate degree severity. These was in line with study done by Orawan Chen *et al.* (2003), they found that most dyspareunia occurred during intercourse (51%), located at vaginal entrance (55 %). Also, Mansor *et al.* (2014) reported that 39.3% of women had pain at introital opening. The majority of dyspareunia cases 44% were used man on top position, while the minority of them (16%) were used cross-wise position. The findings of current study was consistent with John *et al.* (2009) who found that the cross-wise position was perhaps the best position for decreasing dyspareunia than other positions as when employed properly, neither partner is supporting their weight, the external genitalia are available for additional stimulation, and both direction and depth of vaginal penetration can be easily adjusted. Regarding social effect of dyspareunia, the present study revealed that dyspareunia had negative effect on relationship with husband and psychological status. In congruence with these findings Dean A *et al.* (2014) reported that dyspareunia can have a negative impact on a woman's mental health and relationships with partner, also pallavi Latthe *et al.* (2006) reported that anxiety, depression were more common in women with dyspareunia.

#### **Effect of CBT on sexual functioning, pain, marital and psychological state**

The study findings revealed that dyspareunia had negative effect on sexual function, maternal relationship, anxiety and self-esteem. These findings was congruent with findings of Doctorate dissertation conducted by Lea Thaler (2011) who found that women's experience dyspareunia accumulating negative consequences on well being, sexual function, and relationships and added, the more distressed a woman is about the pain she experiences during sex, the higher level of anxiety. Also, Granot *et al.* (2002) and Payne *et al.* (2002) reported that women with painful genital sexual activity—display significantly higher state and trait anxiety than normal controls. In evaluating the level of sexual performance (functioning), maternal adjustment before and after intervention. Several studies were conducted on women with dyspareunia and CBT which included psycho-education, distraction techniques, Kegel exercises, rehearsal of self-coping statements, communication skills training, and cognitive restructuring, sex education (Barbara M. LoFrisco, 2011). There was a statistically significant difference between pre and after intervention phases regarding scores of sexual performance, maternal adjustment scale. The present study findings was congruent with study conducted by Barbara M. LoFrisco (2011) who studied female sexual pain disorders and CBT, it found that about three fourths of women had improved in sexual functioning and reduced pain after receiving CBT.

Moreover, Backman *et al.* (2008) in comparison of CBT vs. Supportive psychotherapy he indicated that CBT was initially effective in treating female sexual pain disorders and improving sexual functioning. Sexual therapy addressing relationship distress, sexual performance concerns, and dysfunctional communication patterns is likely to enhance sexual functioning. It is recommended that both patient and partner should be involved in the sexual therapy. Sexual therapy is also beneficial in patients or couples who desire to resume sexual activity after a prolonged period of abstinence. Lastly, sexual therapy is effective in addressing psychological reactions to medical or surgical treatment (Eleonora *et al.*, 2005). Insufficient lubrication often the result of not enough foreplay. Insufficient lubrication is also commonly caused by a drop in estrogen levels after menopause, after childbirth or during breast-feeding. In addition, certain medications are known to inhibit desire or arousal, which can decrease lubrication and make sex painful. In evaluating psychological factors; level of anxiety, self-esteem scores before and after intervention. There was statistically significant difference between pre and after intervention phases regarding scores of anxiety level, self-esteem scale. These findings was congruent with study conducted by Bergeron *et al.* (2001) who found a significant improvement on measures of psychological adjustment and sexual function from pretreatment to 6-month follow-up in group with CBT.

### Conclusion

CBT is an effective therapy in managing dyspareunia for improving sexual performance, marital relationship particularly with husbands, psychological status and eliminating pain. The risk factors for occurrence of dyspareunia were related to demographic factors (age, residence, income), reproductive factors (vaginal dryness and itching, abnormal vaginal discharge and cervical ulcer/erosion) and obstetric history (episiotomy, laceration during delivery and breast feeding)

### Recommendation

- Integrating the CBT therapy including sexual health into Egyptian health care services achieved by nurses in primary health centers to increase the women's' awareness about dyspareunia.
- Appropriate intervention strategies, including a broad-spectrum diagnosis and management approaches that promote and maintains the sexual and reproductive health among female populations.
- Further studies are needed to address dyspareunia related factors and its management

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