

## Evaluation of Impact of Birth trauma on Female Sexual Activity in Primiparous women: A Comparative Study using Female Sexual Function Index

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**Abstract: Objectives:** To evaluate the impact of labor trauma on postpartum (PP) sexual activity (SA) of low risk healthy PP primipara women. **Patients & Methods:** The study included 417 primipara with mean age of 24.2±2.7 years. All women completed the Female Sexual Function Index (FSFI) including 6 domain scoring; namely, desire, arousal, lubrication, orgasm, satisfaction and pain constituting 19 principle components. Sexual activity was graduated as good (FSFI=30), intermediate (FSFI=22-29) and poor if FSFI<22. Baseline FSFI score was determined at the 1<sup>st</sup> antenatal care visit and was repeated at one (1-m) and 3-m after resuming SA. **Results:** At 1-m, FSFI scoring showed significantly decreased frequency of women had good SA, irrespective of mode of delivery compared to antenatal frequency. Women had cesarean section (CS) showed significantly higher frequency of good SA compared to those had vaginal delivery. Women had unrepaired perineal tear had significantly higher intermediate SA and non-significantly higher good SA compared to those had episiotomy or repaired perineal tear. At 3-m, FSFI scoring showed significantly decreased frequency of good SA compared to antenatal scoring, but women had CS and un-repaired perineal tears showed significantly higher frequency of good SA compared to those had episiotomy or repaired perineal tear. In comparison to antenatal scores, numerical mean FSFI scores at 1-m was significantly lower in all women and at 3-m PP in women had either episiotomy or repaired perineal tear, while was non-significantly lower in women had CS or unrepaired perineal tear. Mean 3-m FSFI scores were significantly higher in all studied women compared to mean 1-m scores. At 1-m PP, all women had vaginal delivery showed significantly lower FSFI compared to those had CS, while at 3-m PP, women had CS and unrepaired perineal tears reported significantly higher FSFI scores compared to those had episiotomy or repaired perineal tears.

**Conclusion:** Labor trauma induced diminution of sexual activity both as frequency and score as judged by FSFI till 3-m after resumption of ability to get intercourse. Vaginal delivery has more deleterious effect especially if associated with episiotomy or repaired perineal tear than CS or spontaneously healed perineal tear. It is recommended to include FSFI as essential part of postpartum evaluation.

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**Keywords:** Female Sexual Function Index (FSFI), Primipara, Cesarean section, Perineal tear, Episiotomy

### 1. Introduction

Understanding of female sexual function has developed significantly from the traditional linear, biologically determined models of human sexual response which divided the sexual response into four distinct phases: excitement, plateau, orgasm and resolution to incorporate desire. Increased recognition of the complexity of female sexual function has led to the evolution of nonlinear models that recognize the importance of non-biological factors, such as emotional intimacy, relationship satisfaction and sexual stimuli along with other psychosocial factors (*Shifren et al., 2008, Brody et al., 2011, Mezones-Holguin et al., 2011*).

Female sexual dysfunction is a term that covers several aspects of sexual health and has been classified by the American Psychiatric Association into distinct disorders of desire, arousal, orgasm or pain. There is often considerable overlap between the sexual disorders, and their coexistence must be considered when assessing patients (*WHO, 1992*).

The birth of a child heralds a multitude of changes for a new mother. Many women experience fatigue, perineal pain, urinary incontinence, depression, and changes in sexual function. While postpartum depression and urinary incontinence have received a moderate amount of attention from researchers, studies focused on PP sexual function have been neglected. Available data suggest that PP sexual problems are common; up to 83% of women report sexual problems in the first 3 months after childbirth, and at 6 months PP 18-30% of women still experience sexual problems, including dyspareunia (*Lansakara et al., 2010, Johnson et al., 2011*).

Objective measures of female sexual function as measure of genital blood flow with arousal are not clinically useful. Therefore, evaluation relies on self reporting on questionnaires. Prior studies of sexual function following childbirth are limited inclusion of high risk pregnancies, with childbirth often accompanied by episiotomy and operative delivery; other studies have included women with known risk

factors for PP sexual dysfunction, particularly antenatal dyspareunia. In addition, studies are limited by the use of questionnaires not validated in PP women (*Basson, 2003*).

*Basson (2001)* highlighted a number of inventories for which internal consistency and test/retest reliabilities have been established and been demonstrated to fall within the acceptable range. Of these, the Female Sexual Function Index (FSFI), (*Chedraui et al., 2009*) was the only published instrument validated and normed on samples of women with clinically diagnosed female sexual dysfunction (*Meston, 2003*). The FSFI has been shown to discriminate reliably between women with and without female sexual arousal disorder on each of six domains: desire, arousal, lubrication, orgasm, satisfaction, and pain (*Meyer-Bahlburg & Dolezal, 2007*).

Multiple studies approved reliability and productivity of FSFI for female sexual function evaluation for multiple tasks of women health statuses and problems; *Chedraui et al. (2009)* assessed sexual function among middle-aged women and determine related risk factors for sexual dysfunction using FSFI. *Revicki et al. (2011)* established the content validity of the FSFI in pre- and postmenopausal women with hypoactive sexual desire disorder, supporting its use as a measure of sexual function in women with this condition. *Rodriguez et al. (2012)* approved the utility of FSFI for assessment of sexual function changes in women got hysterectomy. Moreover, multiple studies approved translated forms of FSFI indicating its worldwide applicability (*Chang et al., 2009, Anis et al., 2011, Takahashi et al., 2011, Fakhri et al., 2012*).

The present prospective screening study aimed to evaluate the impact of both the presence and severity of labor trauma on postpartum sexual activity of low risk healthy postpartum primipara women.

## 2. Patients and Methods

The present study was conducted at Department of Obstetrics and Gynecology, Benha University Hospital, since Jan 2010 till Feb 2012. After approval of the study protocol by the Local Ethical Committee and obtaining written fully informed patients' consents, all primipara women attending postpartum care clinic during the assigned study period were enrolled in the study.

All patients' enrollment data included age, education, presence of associated morbidities and the accustomed frequency of sexual activity. Full obstetric history was obtained and included mode of delivery; whether operative or vaginal and the need for instrumental assistance and its type; occurrence of perineal tear and its management and the frequency of episiotomy.

Then, all women completed the Female Sexual Function Index (FSFI) which includes 6 domain

scoring; namely, desire, arousal, lubrication, orgasm, satisfaction and pain constituting 19 principle components (*Rosen et al., 2000*). For pain scoring, each of its three components in addition to the three items indicating difficulty; 0 score indicated no pain or difficulty and 5 indicating worst intolerable pain or difficulty prohibiting initiation or completion of the sexual act. For nine components, 0 indicated the worst, and 5 indicated the best comment. For the remaining 4 components, 1 indicated worst and 5 indicated best comment. Total domain score was calculated at each visit for comparison. Domain and principal components of each domain with scoring factors for each component were shown in table 1. Sexual activity was graded as good if FSFI=30, intermediate if FSFI= 22-29 and poor if FSFI was <22.

For comparative purposes, baseline FSFI score was determined at the 1<sup>st</sup> antenatal care visit and was repeated once again at one and three months after resuming sexual activity at 45 days postpartum, for religious and social consideration.

**Table (1): Domains and components of FSFI (Rosen et al., 2000)**

Domain	Components	Lower score	Higher score
Desire	Frequency	1	5
	Level	1	5
Arousal	Frequency	0	5
	Level	0	5
	Confidence	0	5
Lubrication	Frequency	0	5
	Difficulty	5	0
	Frequency of maintaining	0	5
	Difficulty of maintaining	5	0
Orgasm	Frequency	0	5
	Difficulty	5	0
	Satisfaction	0	5
Satisfaction	With amount of closeness with partner	0	5
	With sexual relationship	1	5
	With overall sex life	1	5
Pain	Frequency during vaginal penetration	5	0
	Frequency following vaginal penetration	5	0
	Level during or following vaginal penetration	5	0

### Statistical analysis

Obtained data were presented as mean±SD and ranges. Results were analyzed using Wilcoxon ranked test for unrelated data (Z test) and Chi-square test ( $X^2$  test). Statistical analysis was conducted using the SPSS (Version 15, 2006) for Windows statistical package. *P* value <0.05 was considered statistically significant.

### 3. Results

The study included 417 women with mean age of 24.2±2.7; range: 20-30 years. Patients' enrollment data as regard age strata, level of education, occupation and mode of delivery were shown in table 2.

As regards women distribution among sexual activity grades, antenatal FSFI determination defined 289 (69.3%) women had good sexual activity (FSFI score >30), 76 women (18.2%) had intermediate sexual activity (FSFI score 22-30) and 52 women (12.5%) had poor (FSFI score <22) sexual activity with non-significant ( $p>0.05$ ) difference between enrolled women.

First postpartum FSFI scoring showed significantly ( $p<0.05$ ) decreased frequency of women had good sexual activity, irrespective of mode of delivery compared to antenatal frequency. One hundred and two (24.5%) women had good sexual activity, 149 women (35.7%) had intermediate sexual activity, while 166 women (39.8%) had poor. Differentially, women had CS showed significantly ( $p<0.05$ ) higher frequency of good sexual activity compared to those had vaginal delivery, irrespective of having episiotomy or perineal tear. On the other hand, women had unrepaired perineal tear had significantly ( $p<0.05$ ) higher intermediate sexual activity and non-significantly ( $p>0.05$ ) higher good sexual activity compared to those had episiotomy or repaired perineal tear with non-significant ( $p>0.05$ ) difference between both later groups, (Table 3, Fig. 1).

Second postpartum FSFI scoring showed significantly ( $p<0.05$ ) decreased frequency of good sexual activity compared to antenatal scoring but was significantly ( $p <0.05$ ) higher compared to 1-m PP scoring. One hundred and ninety-two (46%) women

had good sexual activity, 136 women (32.6) had intermediate sexual activity, while 89 women (21.4%) had poor, (Table 3, Fig. 1).

Differentially, women had CS showed significantly ( $p <0.05$ ) higher frequency of good sexual activity compared to those had episiotomy or repaired perineal tear with non-significant ( $p >0.05$ ) difference compared to those had unrepaired perineal tears. On the other hand, women had unrepaired perineal tear had significantly ( $p <0.05$ ) higher good sexual activity and non-significantly ( $p >0.05$ ) higher intermediate sexual activity compared to those had episiotomy or repaired perineal tear with non-significant ( $p >0.05$ ) difference between both later groups, (Table 3, Fig. 2).

Concerning numerical mean FSFI scoring; antenatal FSFI sexual activity scores were non-significantly ( $p>0.05$ ) different among studied women. In comparison to antenatal scores, FSFI scores determined at 1-m PP were significantly ( $p <0.05$ ) lower in all studied women and at 3-m PP in women had either episiotomy or repaired perineal tear, while was non-significantly ( $p >0.05$ ) lower in women had CS or unrepaired perineal tear. On the other hand, mean FSFI scores were significantly ( $p <0.05$ ) higher at 3-m PP in all studied women compared to mean scores determined at 1-m PP, (Table 4, Fig. 2).

At 1-m PP, all women had vaginal delivery showed significantly ( $p <0.05$ ) lower FSFI compared to those had CS with non-significant ( $p >0.05$ ) difference between those had vaginal delivery, despite being in favor of those had unrepaired perineal tears. At 3-m PP, women had CS reported significantly ( $p <0.05$ ) higher FSFI scores compared to those had episiotomy or repaired perineal tears, but was non-significantly ( $p >0.05$ ) higher compared to those had unrepaired perineal tears. Moreover, patients had unrepaired perineal tears showed significantly ( $p <0.05$ ) higher FSFI scores compared to those had episiotomy or repaired perineal tears with non-significant ( $p >0.05$ ) difference between the later groups, (Table 4, Fig. 3).

**Table (2): Patients' age data**

Data		Findings	
Age	Strata	Number (%)	Mean
		83 (19.9%)	20.5±0.5 (20-21)
		98 (23.5%)	22.7±0.4 (22-23)
		103 (24.7%)	24.4±0.5 (24-25)
		71 (17.1%)	26.4±0.5 (26-27)
	62 (14.8%)	28.8±0.9 (28-30)	
Total	417 (100%)	24.2±2.7 (20-30)	
Educational status	Illiterate	35 (8.4%)	
	Just to read & write	67 (16.1%)	
	Secondary school graduate	93 (22.3%)	

	High school graduate	83 (19.9%)		
	University graduate	139 (33.3%)		
	Total	417 (100%)		
Occupations	Housewives	88 (21%)		
	Farmers	127 (30.5%)		
	Factory workers	82 (19.7%)		
	Official	120 (28.8%)		
	Total	417 (100%)		
Mode of delivery	CS	107 (25.7%)		
	Vaginal	Episiotomy	193 (46.3%)	
		Perineal tear	Repaired	33 (7.9%)
			Not-repaired	84 (20.1%)

Data are presented as mean±SD & numbers; ranges & percentages are in parenthesis; CS: cesarean section; PP: postpartum

**Table (3): Studied women distribution among sexual activity strata as reported at 1-m and 3-m PP compared to antenatal distribution of studied women categorized according to mode of delivery**

				Good (FSFI>30)	Intermediate (FSFI=22-29)	Poor (FSFI=<22)
Antenatal	CS (n=117)			83 (70.9%)	18 (15.4%)	16 (13.7%)
	Vaginal	Episiotomy (n=187)		132 (70.6%)	34 (18.2%)	21 (11.2%)
		Perineal tear	Repaired (n=33)	21 (63.6%)	7 (21.2%)	5 (15.2%)
			Not-repaired (n=80)	53 (66.2%)	17 (21.3%)	10 (12.5%)
Total			289 (69.3%)	76 (18.2%)	52 (12.5%)	
1-m PP	CS (n=117)			49 (41.9%)	36 (30.8%)	32 (27.3%)
	Vaginal	Episiotomy (n=187)		31 (16.6%)	69 (36.9%)	87 (46.5%)
		Perineal tear	Repaired (n=33)	5 (15.2%)	9 (27.3%)	19 (57.5%)
			Not-repaired (n=80)	17 (21.3%)	35 (43.7%)	28 (35%)
Total			102 (24.5%)	149 (35.7%)	166 (39.8%)	
3-m PP	CS (n=117)			71 (60.7%)	28 (23.9%)	18 (15.4%)
	Vaginal	Episiotomy (n=187)		56 (29.9%)	79 (42.2%)	52 (27.8%)
		Perineal tear	Repaired (n=33)	12 (36.4%)	10 (30.3%)	11 (33.3%)
			Not-repaired (n=80)	53 (66.3%)	19 (23.7%)	8 (10%)
Total			192 (46%)	136 (32.6%)	89 (21.4%)	

Data are presented as numbers; percentages are in parenthesis; CS: cesarean section; PP: postpartum

**Table (4): Mean (±SD) FSFI scores determined at 1- and 3-month postpartum compared to antenatal scores in studied women categorized according to mode of delivery**

Time	CS	Vaginal		
		Episiotomy	Perineal tear	
			Repaired	Un-repaired
Antenatal	39.2±12.9	40.2±13	35.1±11.5	35.2±11.2
1-m PP	30.4±14.5 <sup>D</sup>	23.9±12.1 <sup>AD</sup>	23.1±7.9 <sup>AD</sup>	27±10 <sup>AD</sup>
3-m PP	35.9±13.4 <sup>E</sup>	29.4±12 <sup>ADE</sup>	27.7±11.8 <sup>ADE</sup>	32.4±14.2 <sup>CE</sup>

Data are presented as mean±SD; CS: cesarean section; PP: postpartum; A: significant versus patients had CS; B: significant versus patients had episiotomy; C: significant versus patients had repaired perineal tear; D: significant versus antenatal score; E: significant versus 1-m PP score

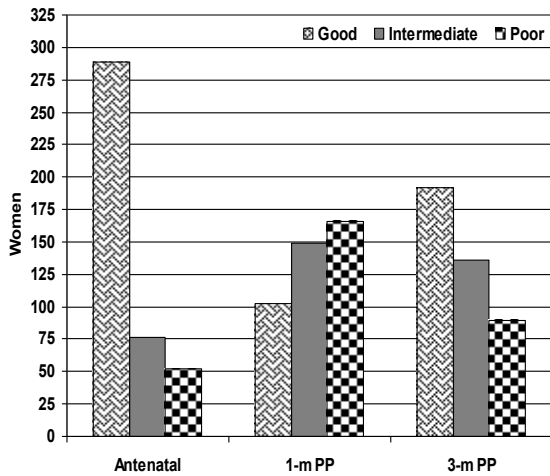


Fig. (1): Studied women distribution according to level of sexual activity at 1-m and 3-m PP compared to antenatal activity

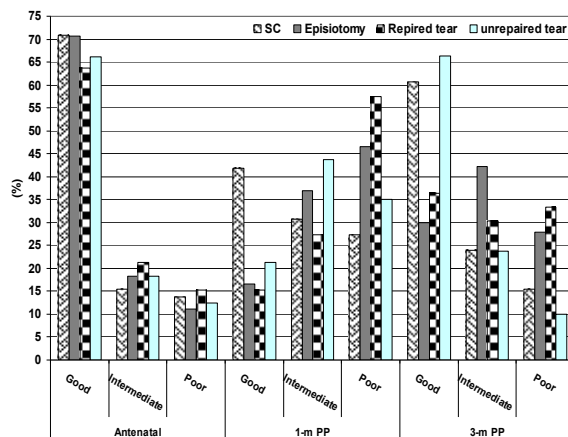


Fig. (2): Percentage of studied women categorized according to mode of delivery among sexual activity grades throughout the study period

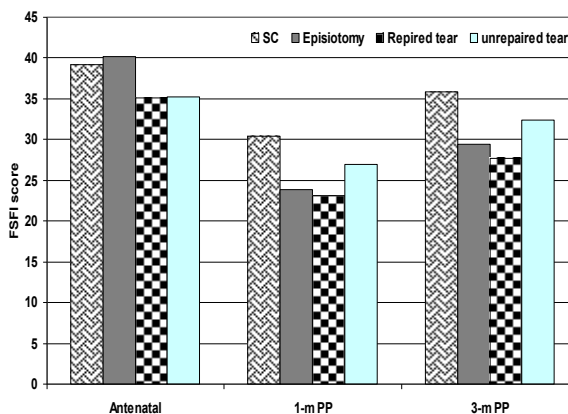


Fig. (3): Mean FSFI sexual activity score of studied women categorized according to mode of delivery throughout the study period

**4. Discussion**

The current study was designed on screening basis for evaluation of the impact imposed by labor associated trauma on the future of couple sexual

relationship; to standardize the study outcome only primipara within the age group of twenty to thirty years old were included in the study. Such groups of women were considered at their highest emotional warmth and desire for early resuming their sexual relationship and on the other side being newly mothers for their first time in their life were highly interested in their baby. Additionally, their male partners will be around the same age group and mostly had competent ability to do an act as regards potency, ejaculatory function and sexual interest.

The study relied on FSFI questionnaire which is a widely used instrument, applicable for sexually active or inactive women for assessment of female sexual performance (Boehmer et al., 2012, Chedraui et al., 2009, Chedraui et al., 2012, Revicki et al., 2011, Rodriguez et al., 2012). For comparative purposes, FSFI was determined at the 1<sup>st</sup> antenatal care visit as a baseline score and was repeated again at one and three months after resuming sexual activity at 45 days PP, for religious and social consideration.

The outcome of the study could be summarized in three points; firstly irrespective of mode of delivery, all enrolled women showed significant decrease of their mean postpartum FSFI compared to their antenatal score despite the significant improvement reported at the 3<sup>rd</sup> month-scoring compared to 1<sup>st</sup> month-scoring. These data indicated a fact that birth-associated body trauma negatively affected sexual fulfillment of these newly parturient. In support of this assumption, women had CS, despite having no perineal trauma or difficult manipulation showed significantly lower FSFI compared to their antenatal score, but was significantly higher compared to those had vaginal delivery. In line with these findings, Shirvani et al. (2010) using FSFI found that all dimensions of women's sexual function were at the lowest level at the first 3 months of postpartum and recovery during the following months and the most common reasons were fear of pain, no interest, worrying about another pregnancy, feeling tired and bleeding.

Lal et al., (2011) reported that both caesarean and perineal scars were associated with sexual malfunction, but primiparae with new incontinence had a lower risk of dyspareunia than impaired general sexual health and concluded that awareness of the associations of post-caesarean dyspareunia and impaired general sexual health with incontinence would facilitate appropriate obstetric decision-making. Chivers et al. (2011) assessed sexual functioning and sexual behavior in postpartum women using FSFI and reported that 65% of studied women's scoring was in the range associated with clinical sexual dysfunction.

Varghese et al. (2012) reported that the common disorders included hypoactive desire and arousal and orgasmic disorders and those had sexual disorders had a significantly poorer quality of life in general and had



impaired social relationships. *Acele & Karaçam (2012)* found that 91·3% of women had sexual problems in the first postpartum year and 58·3% reported that they had dyspareunia in postpartum period.

Women had perineal tear showed significantly higher 1<sup>st</sup> and 3<sup>rd</sup> month FSFI scoring compared to those had episiotomy and women had un-repaired perineal tear that healed spontaneously showed significantly higher FSFI scoring compared to those had repaired perineal tears; thus indicating the more the perineal trauma and the more the interferences, the more bad sexual functioning in the future. In hand with these findings, *Abdool et al. (2009)* reported that the most common disorder in the postpartum period appears to be that of sexual pain as a consequence of perineal trauma. *Rogers et al. (2009)* demonstrated significant differences between women had minor and major perineal trauma and women with major trauma reported less desire to be held, touched, and stroked by their partner than women with minor trauma, and women who required perineal suturing reported lower Intimate Relationship Scale scores than women who did not require suturing. *Rathfisch et al. (2010)* documented that compared to women with intact perineum, those who had both episiotomy and second degree perineal tears, had lower levels of libido, orgasm, and sexual satisfaction and more pain during intercourse. The presence of at least one sexual problem as reduced sexual desire, reduced vaginal arousal, reduced vaginal lubrication, reduced frequency of orgasm, dissatisfaction with sexual life and dyspareunia was statistically significant more common after birth.

Secondly; in trial to explore other underlying causes for decreased sexual function; all enrolled women were dissatisfied up to getting depressed because of loss of their body contour secondary to failure to loss excess weight gained during pregnancy, pendulous abdomen and redundant lumber and buttock regions. Moreover, women had CS had sense of disfigured abdomen secondary to wound scar. Some of enrolled women succeeded to loss weight and underwent regular exercise training for improvement of their body musculature and regained acceptable body weight and contour with improvement of both their psychological status and sexual functioning. In support of the impact of depression on sexual functioning, *Pastore et al. (2007)* reported that new mothers and fathers both have postpartum a sexuality impact from the mother's body image concerns and desire discrepancy. *Pauls et al. (2008)* reported that in early pregnancy, low sexual function was associated with impaired body image, but although body image during sexual functioning did not significantly change during pregnancy, it worsened in the postpartum period. *Nobre & Pinto-Gouveia (2008)* documented that body image beliefs and automatic thoughts focusing on self-

body appearance seem to be strongly associated with orgasmic disorder.

Thirdly, the care of the newly born infant and breast feeding may induce changes in female lifestyle which may endanger their sexual functioning. In hand with this assumption, *Signorello et al. (2001)* reported that at 3 and 6 months post partum 41% and 22%, respectively, of newly delivered women reported dyspareunia and at 6 months postpartum, the use of vacuum extraction or forceps was significantly associated with dyspareunia and women who breast-fed were  $\geq 4$  times are likely to report disturbed sexual function than those did not breast feed. *Connolly et al. (2005)* found dyspareunia was only associated with breast-feeding at 12 weeks.

The obtained results allowed concluding that labor trauma induced diminution of sexual activity both as frequency and score as judged by FSFI till 3-m after resumption of ability to get intercourse. Vaginal delivery has more deleterious effect especially if associated with episiotomy or repaired perineal tear than cesarean section or spontaneously healed perineal tear. It is recommended to include FSFI as essential part of postpartum evaluation especially for primipara.

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#### 5. References

1. Abdool Z, Thakar R, Sultan AH.,2009. Postpartum female sexual function. Eur J Obstet Gynecol Reprod Biol.; 145(2):133-7.
2. Acele EÖ, Karaçam Z., 2012. Sexual problems in women during the first postpartum year and related conditions. J Clin Nurs.; 21(7-8):929-37.
3. Anis TH, Gheit SA, Saied HS, Al kherbash SA., 2011. Arabic translation of Female Sexual Function Index and validation in an Egyptian population. J Sex Med.; 8(12):3370-8.
4. Basson R., 2001. Using a different model for female sexual response to address women's problematic low sexual desire. J. Sex Marital Ther.; 27(5): 395-403.
5. Basson R, Leiblum S, Brotto L.,2003. Definitions of women's sexual dysfunctions reconsidered: advocating expansion and revision. J. Psychosom. Obstet. Gynaecol.; 24(4): 221-9.
6. Boehmer U, Timm A, Ozonoff A, Potter J., 2012. Applying the Female Sexual Functioning

- Index to sexual minority women. *J Womens Health (Larchmt)*.; 21(4):401-9.
7. Brody S, Costa RM, Hess U, Weiss P., 2011. Vaginal orgasm is related to better mental health and is relevant to evolutionary psychology: a response to Zietsch *et al.* *J Sex Med.*; 8(12):3523-5.
  8. Chang SR, Chang TC, Chen KH, Lin HH., 2009. Developing and validating a Taiwan version of the female sexual function index for pregnant women. *J Sex Med.*; 6(6):1609-16.
  9. Chedraui P, Perez-Lopez FR, San Miguel G, Avila C., 2009. Assessment of sexuality among middle-aged women using the Female Sexual Function Index. *Climacteric.*; 12(3):213-21.
  10. Chedraui P, Pérez-López FR, Sánchez H, Aguirre W, Martínez N, Miranda O, Plaza MS, Schwager G, Narváez J, Quintero JC, Zambrano B., 2012. Assessment of sexual function of mid-aged Ecuadorian women with the 6-item Female Sexual Function Index. *Maturitas.*; 71(4):407-12.
  11. Chivers ML, Pittini R, Grigoriadis S, Villegas L, Ross L., 2011. Relationship between sexual functioning and depressive symptomatology in postpartum women: a pilot study. *J Sex Med.*; 8(3):792-9.
  12. Connolly A, Thorp J, Pahel L., 2005. Effects of pregnancy and childbirth on postpartum sexual function: a longitudinal prospective study. *Int Urogynecol J Pelvic Floor Dysfunct.*; 16(4):263-7.
  13. Fakhri A, Pakpour AH, Burri A, Morshedi H, Zeidi IM., 2012. The Female Sexual Function Index: translation and validation of an Iranian version. *J Sex Med.*; 9(2):514-23.
  14. Johnson CE., 2011. Sexual health during pregnancy and the postpartum. *J Sex Med.*; 8(5):1267-84;
  15. Lal M, Pattison HM, Allan TF, Callender R., 2011. Does post-caesarean dyspareunia reflect sexual malfunction, pelvic floor and perineal dysfunction? *J Obstet Gynaecol.*; 31(7):617-30.
  16. Lansakara N, Brown SJ, Gartland D., 2010. Birth outcomes, postpartum health and primary care contacts of immigrant mothers in an Australian nulliparous pregnancy cohort study. *Matern Child Health J.*; 14(5):807-16.
  17. Meston CM., 2003. Validation of the Female Sexual Function Index (FSFI) in Women with Female Orgasmic Disorder and in Women with Hypoactive Sexual Desire Disorder. *J Sex Marital Ther.*; 29(1): 39-46.
  18. Meyer-Bahlburg HF, Dolezal C., 2007. The female sexual function index: a methodological critique and suggestions for improvement. *J Sex Marital Ther.*; 33(3):217-24.
  19. Mezones-Holguin E, Córdova-Marcelo W, Lau-Chu-Fon F, Aguilar-Silva C, Morales-Cabrera J, Bolaños-Díaz R, Pérez-López FR, Chedraui P., 2011. Association between sexual function and depression in sexually active, mid-aged, Peruvian women. *Climacteric.*; 14(6):654-60.
  20. Nobre PJ, Pinto-Gouveia J., 2008. Cognitive and emotional predictors of female sexual dysfunctions: preliminary findings. *J Sex Marital Ther.*; 34(4):325-42.
  21. Pastore L, Owens A, Raymond C., 2007. Postpartum sexuality concerns among first-time parents from one U.S. academic hospital. *J Sex Med.*; 4(1):115-23.
  22. Pauls RN, Occhino JA, Dryfhout VL., 2008. Effects of pregnancy on female sexual function and body image: a prospective study. *J Sex Med.*; 5(8):1915-22.
  23. Rathfisch G, Dikencik BK, Kizilkaya Beji N, Comert N, Tekirdag AI, Kadioglu A., 2010. Effects of perineal trauma on postpartum sexual function. *J Adv Nurs.*; 66(12):2640-9.
  24. Revicki DA, Margolis MK, Bush EN, DeRogatis LR, Hanes V., 2011: Content validity of the Female Sexual Function Index (FSFI) in pre- and postmenopausal women with hypoactive sexual desire disorder. *J Sex Med.*; 8(8):2237-45.
  25. Rodríguez MC, Chedraui P, Schwager G, Hidalgo L, López FR., 2012. Assessment of sexuality after hysterectomy using the Female Sexual Function Index. *J Obstet Gynaecol.*; 32(2):180-4.
  26. Rogers RG, Borders N, Leeman LM, Albers LL., 2009. Does spontaneous genital tract trauma impact postpartum sexual function? *J Midwifery Womens Health.*; 54(2):98-103.
  27. Rosen R, Brown C, Heiman J, Leiblum S, Meston CM, Shabsigh R, Ferguson D, D'Agostino R Jr. , 2000. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*; 26:191–208.
  28. Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB. ,2008. Sexual problems and distress in United States women. Prevalence and correlates. *Obstet. Gynecol.*; 112(5): 970–8.
  29. Shirvani MA, Nesami MB, Bavand M., 2010. Maternal sexuality after child birth among Iranian women. *Pak J Biol Sci.*; 13(8):385-9.
  30. Signorello LB, Harlow BL, Chekos AK, Repke JT., 2001. Postpartum sexual functioning and its relationship to perineal trauma: a retrospective cohort study of primiparous women. *Am J Obstet Gynecol.*; 184(5):881-8.
  31. Takahashi M, Inokuchi T, Watanabe C, Saito T, Kai I., 2011. The Female Sexual Function Index (FSFI): development of a Japanese version. *J Sex Med.*; 8(8):2246-54.
  32. Varghese KM, Bansal R, Kekre AN, Jacob KS., 2012. Sexual dysfunction among young married

women in southern India. Int Urogynecol J. Apr 25; Epub ahead of print.

33. World Health Organization (WHO), 1992. International Statistical Classification of Diseases

and Related Health Problems. 10<sup>th</sup> revision. World Health Organization, Geneva, Switzerland.

### Appendix 1: Arabic Model of FSFI

تحليل المكونات التسع عشرة لمجالات المسح المكونة لمقياس معدل الأداء الجنسي عند النساء

مجال المسح	مكونات المجال	صفر	1	2	3	4	5
المرغبة - الشهوة	معدل الحدوث						
	مستواها						
الإستثارة	معدل الحدوث						
	مستواها						
	مدي الوثوق بآثارها						
	مدي الرضا						
معدل الليونة	معدل الحدوث						
	مدي سهولة الحدوث						
	معدل الإحتفاظ بهذه الليونة						
	مدي الإحتفاظ بهذه الليونة						
النشوة	معدل الحدوث						
	مدي سهولة الحدوث						
	مدي الرضا بمعدل النشوة الناتجة						
مدي الرضا	بمقدار القرب من الزوج						
	بالعلاقة الجنسية						
	بالتعايش الجنسي بصورة عامة						
حدوث الألم	معدل الحدوث أثناء الإيلاج						
	معدل الحدوث بعد الإيلاج						
	مدي الحدوث أثناء أو بعد الإيلاج						

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