ORIGINAL ARTICLE

SEXUAL DYSFUNCTION AMONG WOMEN AT FOUR TO SIX MONTHS POSTPARTUM: A STUDY IN A PRIMARY CARE SETTING

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ABSTRACT

Sexual dysfunction in women is a significant health problem that harms marriage stability. Women in the Western countries were reportedly being affected by this condition after childbirth but the magnitude of the problem in our local setting is still unknown. The aim of this cross-sectional study was to determine the prevalence of women with sexual dysfunction at four to six months postpartum and its possible risk factors in an urban primary care setting. The participants were given a set of questionnaire, consisting of three parts; i) sociodemographic and maternal characteristics ii) Malay version of Female Sexual Function Index and iii) Malay DASS-21 questionnaire. Responses from 249 women were analyzed. More than half (57.0%,n=142) were found to have sexual dysfunction. The most prevalent types of sexual dysfunction reported by the affected women were sexual satisfaction disorder (98.6%), followed by arousal disorder (58.5%) and lubrication disorder (28.9%). Three factors were found to be significantly associated with sexual dysfunction; household income of less than RM2000 (adj OR = 0.31, 95% CI 0.14, 0.70), Malay ethnic group (adj OR = 1.93,95% CI 1.02, 3.66) and breastfeeding (adj OR = 2.24,95% CI 1.03, 4.85). In conclusion, the prevalence of sexual dysfunction in the postpartum period was considerably high. Efforts should be made to incorporate sexual health as part of the routine postnatal assessment in primary care practice.

Keywords. *Sexual dysfunction, women, postpartum, primary care, postnatal, childbirth*

INTRODUCTION

Women's sexual health has traditionally been a taboo subject as it is closely related to a society's culture and religious values[1,2]. In recent years, sexual dysfunction in women has emerged as an important health condition as many countries reported its high prevalence, of 40.0-76.9%[3-5]. The sexual problem in women could be described in six domains; *low sexual desire, difficulty in achieving satisfaction and orgasm, diminished arousal, poor vaginal lubrication and sexual pain disorder*[6].

Sexual dysfunction may occur at any stage in a woman's life but more so during the postpartum period[7]. Previous research reported that 25% of women had at least one domain of sexual dysfunction in a lifetime[8,] and 64.3% of them had this problem within the first year after childbirth[9]. According to Barret et al., 83.0% of the women started to have this problem as early as at third month postpartum[10]. Two local studies found that 25.8% to 29.6% of women have sexual dysfunction[1-2] but these studies did not assess the exact time of its occurrence.

Female sexual dysfunction has a multifactorial nature[1]. Past studies found that sexual dysfunction is more likely to occur among women with higher educational level, less household income[5,11-13], higher age[1,14-15] and Malay ethnic group[2,16]. Sexual function may also be affected by breastfeeding as the vagina could become dry and some women experience lack of desire resulting from the hormonal changes[17,18]. Nevertheless, this finding is still inconclusive[19]. The other common factor is perineal tear which is the leading cause for dyspareunia, a type of sexual pain[10]. Women's psychological mood is also essential for sexual activity[20] and feeling distress will affect one's sexual desire[21]. A local study among postpartum women found that the prevalence of depression, anxiety and stress is 4%, 16% and 4.7% respectively[22] and this figure is expected to rise with the increasing cost of living and child care[21,23].

Sexual dysfunction in women inadvertently affects the sexual relationship with the spouse[24-25] and if this problem remains unsolved, it may disrupt the marriage and contribute toward dysfunctional families[24,26]. Nevertheless, at present, local studies on this issue are still scarce. We conducted the current study to determine the prevalence of sexual dysfunction among woman at four to six months postpartum period and the factors associated with it. Possible factors

including sociodemographic, psychological factors and maternal characteristics such as parity, breastfeeding, mode of delivery, history of perineal tear were investigated in this study.

METHODOLOGY

Study design and sampling

A cross-sectional study was conducted from June until October 2016 at an urban primary care clinic, Klinik Kesihatan Petra Jaya, Kuching, Sarawak. Women who came for their child's immunization and health check-up at four to six months postpartum were identified and approached. The period of four to six months was chosen as previous studies showed that 80-93% of women resumed sexual activity at three months postpartum and it is ordinary for women to restart their sexual relationship by this time[27]. The Malay version was used as it is a commonly spoken language of the people in the study setting. The women were recruited through non-probability sampling method as it is not feasible to perform random sampling at the Maternal Child Health Care Unit in the clinic. The study included women aged more than 18 years old and able to read the Malay language. Those who are not married were excluded as we are not sure whether they have a regular sexual partner.

The sample size calculation was based on Kish formula[28], with a precision of 5% and a confidence interval of 95%. The estimated prevalence rate of female sexual dysfunction after delivery was 83% based on the study by Barret et al. (2000)[10]. The minimum sample size calculated was 217 and with the estimation of 20% for dropped out rate, the total sample needed was 260.

Study Instrument

The study used a self-administered questionnaire in the Malay language and consisted of three parts. The first part assessed socio-demographic and maternal characteristics including age, ethnicity, education level, religion, occupation, household income, mode of delivery, parity, breastfeeding status and history of perineal tear.

The second part of the questionnaire evaluated the participant's sexual function using the MVFSFI questionnaire[6] and permission to use the questionnaire was obtained from the author. The Malay version of Female sexual function index questionnaire (FSFI) contains 19-items, capturing the women's sexual changes for the past one month[6]. The Malay version FSFI had been validated locally[6] and had good reliability (the Cronbach alpha is 0.87 to 0.97)[6]. The sensitivity and specificity in detecting sexual dysfunction are 95% and 97% respectively[6]. The total score of the questionnaire was calculated by adding all of the items' score. A total score of ≤ 55 indicates the presence of sexual dysfunction[6].

The questionnaire consists of six domains of female sexual dysfunction; *desire, arousal, lubrication, orgasm, satisfaction and pain*[6]. Each domain consists of between two to four items. The total score for each domain was calculated after summing all the items in the domain. **Table 3** described the item in each domain, its' options and scoring. The cut-off point to define good and poor sexual function for each domain[6] was also calculated, as shown in **Table 3.**

The last part of the questionnaire was the Malay version of the 21-item Depression, Anxiety and Stress Scale (DASS-21). The Malay version DASS-21 is a self-reported validated questionnaire which is available publicly and had an acceptable internal consistency with Cronbach's alpha values ≥0.70[29]. It measures the presence and severity of depressive, anxiety and stress symptoms. The score for each item ranged between zero (never) to three (almost always). The probability of having depression is when the total score is more than ten, of having anxiety when the total score is more than eight and of having stress when it is more than fifteen[22].

Data collection

The questionnaires were first pre-tested to twenty postpartum women and the results from this step had confirmed its clarity and comprehensibility. The study was carried out by the researcher. After obtaining written consent and, the self-administered questionnaire was distributed to the participants and participants were given a private room to answer. Participants were also reassured of their confidentiality.

Ethical approval

The study was approved by the Research and Ethics Committee of Universiti Kebangsaan Malaysia Medical Centre (code no: FF-2016-114) and Medical Research Ethics Committee of the Ministry of Health Malaysia (NMRR-15-2376-28732(IIR).

Data analysis

Data were analysed with SPSS software version 22.0. For data analysis, several variables were re-categorized into two; *perineal tear* (presence and absence/not sure), *ethnic* (Malay and non-Malay) and *education level*(lower/higher education). Descriptive statistics were used to present the qualitative [frequency (*n*) and percentage (%)], quantitative [mean and standard deviation (SD)] and [median and interquartile range (IQR)] data. Simple logistic regression and multiple logistic regression analyses were performed to obtain the crude and adjusted odds ratio (cOR and aOR) with their respective 95% confident interval (CI). All independent variables from simple logistic regression were included for further multiple logistic regression analysis due to their potential clinical importance[30]. The backward stepwise multiple logistic regression was conducted to control for possible confounders.

RESULTS

A total of 300 women were approached, but only 270 women eligible for this study. However, ten women refused to participate and eleven questionnaires were incomplete. Therefore, the response rate was 96.3%, with 249 questionnaires were analysed. **Table 1** shows the sociodemographic and maternal characteristics of the participants. The mean age of the participants was 28.99 (SD 6.07) years. The majority of them were Malays (77.9%), Muslims (85.9%), attained a secondary level of education (57.8%) and with a monthly household income of less than 2000 Malaysian Ringgit (MYR) (58.6%). More than half were unemployed (56.2%). Approximately more than two-thirds of the participants were multiparous (62.2%), had a perineal tear (63.1%) and a majority of them were breastfeeding (85.9%). **Table 2** shows the psychological characteristics of the participants based on the Malay DASS-21. The prevalence of possible depression, anxiety and stress were 16.1%, 24.9% and 12.4% respectively.

Table 1. Sociodemographic and maternal characteristic of participants (n=249)

Variables	*n* (%)	Mean (SD)	Median (IQR)
Age (years)		28.99 (6.07)	
≤20	22 (8.8)		
21-31	134 (53.8)		
31-40	84 (33.7)		
≥41	9 (3.6)		
Monthly household income (MYR)			2645.08(2354.54)
<2000	146 (58.6)		
2001-4000	60 (24.1)		
>4000	43 (17.3)		
Education level			
Primary	18 (7.2)		
Secondary	144(57.8)		
Tertiary	87(34.9)		
Ethnicity			
Malay	194 (77.9)		
Chinese	12 (4.8)		
Sarawak natives	43 (17.3)		
Religion			
Muslim	214(85.9)		
Christian	29 (11.6)		
Buddha	6 (2.4)		
Occupation			
Unemployed	140 (56.2)		
Employed	109 (43.8)		
Parity			
Primiparous	94 (37.8)		
Multiparous	155 (62.2)		
Breast Feeding			
Yes	214 (85.9)		
No	35 (14.1)		
Perineal status			
Perineal tear	157 (63.1)		
No perineal tear	80 (32.1)		
Not sure	12 (4.8)		
Mode of delivery			
Normal	188 (75.5)		
Assisted	17 (6.8)		
Caesarean	44 (17.7)		

Table 2. Psychological characteristic of the participants based on Malay DASS-21

Psychological characteristics	No of item	Cut off score	*n* (%)
Depression	7	Yes (≥10)	40 (16.1)
		No (<10)	209 (83.9)
Anxiety	7	Yes (≥8)	62 (24.9)
		No (<8)	187 (75.1)
Stress	7	Yes (≥15)	31 (12.4)
		No (<15)	218 (87.6)

Prevalence and domains of the female sexual dysfunction (MVFSFI) at four to six months postpartum

The prevalence of sexual dysfunction was 57.0% (142/260). **Table 3** shows the score for each domain. Out of these 142 women, majority of the participants had sexual satisfaction disorder (98.6%), followed by disorder in arousal (58.5%) and lubrication (28.9%). Only a few women were found to have pain, orgasm and desire disorders, with their prevalence of 27.5%, 26.1% and 19.0% respectively.

Table 3. The item, options and score for each domain of MVFSFI among 142 participants with sexual dysfunction

Sexual domain	Item no.	Options and scoring	Cut-off score	*n* (%)
Desire disorder	1,2	almost never/very low(score=1) to almost always/very high(score-5)	Yes (≤ 5) No (>5)	27 (19.0%) 115 (81.0%)
Arousal disorder	3,4,5,6	No sexual activity(0), almost never/very low(score=1) to almost always/very high(score=5)	Yes (≤ 9) No (>9)	83 (58.5%) 59 (41.5%)
Lubrication disorder	7,8,9,10	No sexual activity(0), almost never/very low(score=1) to almost always/very high(score=5)	Yes (≤10) No (>10)	41 (28.9%) 101 (71.1%)
Orgasmic disorder	11,12	No sexual activity(0), almost never/extremely difficult(score=1) to almost always/not difficult(score=5)	Yes (≤4) No (>4)	37 (26.1%) 105 (73.9%)
Satisfaction disorder	13,14,15,16	No sexual activity(0) very dissatisfied(score=1) to very satisfied(score=5)	Yes (≤11) No (>11)	140 (98.6%) 2 (1.4%)
Pain disorder	17,18,19	No sexual activity(0), almost never/very low(score=5) to almost always/very high(score=1)	Yes (≤7) No (>7)	39 (27.5%) 103 (72.5%)

Factors associated with sexual dysfunction

Simple logistic regression analysis indicated that four factors were associated with sexual dysfunction among the women at four to six months postpartum **(Table 4).** Women with a monthly income of <MYR 2000 were less likely to have sexual dysfunction [cOR:0.39(95% CI:0.18, 0.81),*p*=0.012] compared to women with a monthly income of >MYR4000. Women with higher education level [cOR: 1.86(95% CI:1.08, 3.19),*p*=0.025] and from the Malay ethnic group [cOR:2.21(95% CI:1.20, 4.06),*p*=0.011] had approximately two times of odds to have sexual dysfunction compared to women with lower education level and from other ethnic groups, respectively. Women who were breastfeeding had almost three times of odds [cOR:2.57 (95% CI: 1.23, 5.37),*p*= 0.012] for sexual dysfunction compared to women who were not. All independent variable were included for further regression analysis due to their clinical importance and potentials as confounders despite non-statistical significance[30].

Table 5 depicts the result of the multiple logistic regression analysis. Only three significant factors were associated with sexual dysfunction at four to six months postpartum. Women with a monthly income of <MYR 2000 were less likely to have sexual dysfunction [aOR:0.31 (95% CI:0.14, 0.70),*p*=0.005] compared to women with a monthly income of >MYR4000. Being Malay [aOR: 1.93 (95% CI:1.02, 3.66),*p*=0.045] and breastfeeding [OR: 2.24 (95% CI: 1.03,4.85),

p=0.041] had approximately two times of odds to have sexual dysfunction in comparison to non-Malay and not breastfeeding. However, these three factors could only explain 11.3% of sexual dysfunction variability among women in the postpartum period.

Table 4. Simple logistic regression of factors for women sexual dysfunction at the postpartum period (n=249)

Variables	Sexual dysfunction		cOR (95% CI)	*p*-value
	mean (SD)	mean (SD)		
Age(years)	28.74 (5.75)	29.33 (6.49)	0.98 (0.94, 1.03)	0.449
	Yes ***n* (%)**	**No** ***n* (%)**		
Higher education level	58 (66.7)	29 (33.3)	1.86 (1.08,3.19)	**0.025**
Lower education level	84 (51.9)	78 (48.1)	1	
Unemployed	78 (55.7)	62 (44.3)	0.88 (0.53, 1.47)	0.635
Employed	64 (58.7)	45 (41.3)	1	
Monthly income (MYR)				
<2000	73 (50.0)	73 (50.0)	0.39 (0.18, 0.81)	**0.012**
2001-4000	38 (63.3)	22 (36.7)	0.67 (0.29, 1.56)	0.352
>4000	31 (72.1)	12 (27.9)	1	
Malay	119 (61.3)	75 (38.7)	2.21 (1.20, 4.06)	**0.011**
Non-Malay	23 (41.8)	32 (58.2)	1	
Breastfeeding	129 (60.3)	85 (39.7)	2.57 (1.23, 5.37)	**0.012**
Not breastfeeding	13 (37.1)	22 (62.9)	1	
Perineal tear	92 (58.6)	65 (41.4)	1.19 (0.71, 2.00)	0.513
No perineal tear/unsure	50 (54.3)	42 (45.7)	1	
Assisted delivery	9 (52.9)	8 (47.1)	0.80 (0.30, 2.16)	0.656
Caesar	23 (52.3)	21 (47.7)	0.78 (0.40, 1.50)	0.452
Normal delivery	110 (58.5)	78 (41.5)	1	
Depression	23 (57.5)	17 (42.5)	1.02 (0.52, 2.03)	0.948
No depression	119 (56.9)	90 (43.1)	1	
Anxiety	35 (56.5)	27 (43.5)	0.97 (0.54, 1.73)	0.916
No Anxiety	107 (57.2)	80 (42.8)	1	
Stress	17 (54.8)	14 (45.2)	0.90 (0.42, 1.93)	0.792
No Stress	125(57.3)	93 (42.7)	1	

Table 5. Final factors for women sexual dysfunction at the postpartum period (n=249)

Variables	aOR (95% CI)[a]	*p*-value
Monthly income (MYR)		
<2000	**0.31 (0.14, 0.70)**	**0.005**
2001-4000	0.62 (0.25, 1.47)	0.269
>4000	1	
Malay	**1.93 (1.02, 3.66)**	**0.045**
Non-Malay	1	
Breastfeeding	**2.24 (1.03, 4.85)**	**0.041**
Not breastfeeding	1	

*[a]Backward-stepwise multiple logistic regression, *Hosmer and Lemeshow p=0.350, Nagelkerke R squared = 11.3%.*

DISCUSSION

Female sexual function is vital for women's well-being and marital relationship[31]. The current study is regarded as an initial effort to evaluate female sexual function during the postpartum period. The results showed that the prevalence of female sexual function at four to six months postpartum period was 57.0%, which was comparable with an Australian study, using a similar measurement tool (64.0%)[9]. However, this figure is lower compared to the studies done in Turkey and London[10,14]. The discrepancy is owing to several possible reasons. There are notable differences, namely, in the timing of the

participants' enrolment (between 2 to 12 months postpartum period), the study instruments used and inclusion criteria[10].

This study found that most women with sexual dysfunction at four to six months postpartum period had sexual dissatisfaction (98.6%), and this number is higher compared to the previous research[9,32]. Nevertheless, the number of women found to have problems in other domains of sexual dysfunction were similar to others[9,10,33]. Sexual dissatisfaction commonly occurs when women felt there is an overall low satisfaction in their marriage[9,] and this concurs with the opinion by Gungor et al[34]. Furthermore, some couples faced a reduction in the marital quality after the childbirth [24] and this probably due to the changes in family role. It is natural that when the newborn comes, the wives tend to give more attention to the baby[17,34,] and they might have insufficient time for sexual intimacy[24,34-35]. The lack of time could jeopardise the relationship between the couples, resulting in the marriage instability. In regards to the specific sexual disorders, vaginismus[36] and lack of orgasm[37] were found to be more common in women with high socioeconomic status. This was probably because women in the upper socioeconomic group had a higher expectation of their sexual life and marriage[38],hence, they were more likely to report having sexual dysfunction[38].

The regression analysis from the current study revealed that women from lower household income were less likely to have sexual dysfunction, in contrary to previous studies[13,39]. A possible reason for this difference is, income was said to have a link to the feeling of life satisfaction[40], which was a contributing factor for sexual dysfunction in women[41]. Although people in the high-income group was stated to have a better life satisfaction[40], a study found that people with low-income also felt satisfied with their life[42]. These various opinions demand a further investigation and the role of religiosity underneath the feeling of life contentment, as well as satisfaction, should not be denied.

Sexual health has a strong cultural and ethnic influence in any community, including in Malaysia[43]. Being–Malay is another potential risk factor for women to have sexual dysfunction, as evidenced by the current work and local population surveys[1-2]. In a conservative society like Malaysia, the sexual topic is still not openly discussed in public and the Malays felt more embarrassed to talk about their sexual problems compared to other races[1], causing the problem to persist without any intervention.

In this study, women who are breastfeeding were more likely to have sexual dysfunction than those who were not, a finding similarly documented in other reports[31,44]. The result might be related to the high level of prolactin and a low level of testosterone as well as androstenedione during breastfeeding, giving rise to a lack of sexual desire[45]. Besides, a low estrogen level during lactation might have caused women to have vaginal dryness and dyspareunia[17,45]. It is also thought that when women breastfeed their child, they would probably give less time to perform sexual activity[17].

Since many years ago, women have requested caesarian sections[46-47] as they believe that this mode of delivery can prevent pelvic floor damage and hence, protect their sexual function[17,27]. However, the finding from the present research as well as others found a perineal tear and mode of delivery are not the predictors for sexual dysfunction[46,48]. Furthermore, Andrews et al. emphasized that any perineal pain and dyspareunia caused by birth trauma commonly resolve at three months postpartum regardless of the degree of perineal damage[49].

The current work also found that 16.1% of postpartum women possibly suffered from depression, 24.9% from anxiety and 12.4% from stress, which were parallel with other studies[21,50-51]. These factors were not significantly associated with sexual dysfunction, a contrary finding with previous works[52-53]. Although postpartum depression and anxiety have been studied extensively, there are still limited studies looking into the association of depression, anxiety and stress with sexual dysfunction during postpartum period[21,51,54]. The causal relationship between psychological distress and sexual dysfunction are still unclear[54]. Therefore, more studies should be done in future to determine the relationship between psychological distress and postpartum women sexual dysfunction.

Study limitations and recommendations

Our study has several limitations. The participants were selected through convenient sampling; thus, the result of this study cannot be generalized to the entire Malaysian population. Secondly, most of the women with sexual dysfunction had sexual dissatisfaction and this is probably related to their marriage life. However, our study did not capture any information on their marital relationship. Another limitation is the current study had used a single version of the questionnaire, which was the Malay language. Therefore, the results should be interpreted with caution as the responses from women who cannot understand Malay were not included.

We suggest that further studies could be done with a better sampling method, looking into other possible factors, including the quality of marital life. Since R square in this study is only 11.3%, perhaps the more robust method is through an exploratory work to identify and understand factors contributing to the sexual dysfunction in postpartum women.

CONCLUSION

One in two women at four to six months postpartum have sexual dysfunction, especially in satisfaction, arousal and lubrication disorder. Being Malays and breastfeeding are the risk factors for women to have sexual dysfunction during the postpartum period. Women with a low household income were noted to be less likely to have sexual dysfunction. The results of this study should draw medical attention to assess women's sexual function during the postnatal visits. The clinicians have a crucial role in helping women after childbirth by initiating the discussion on their sexual health.

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Declaration of interests
The authors declare no conflict of interest in this study.

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