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GENERAL GYNECOLOGY

Prevalence of sexual dysfunction in pregnancy

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Abstract

Purpose This study aims to determine the prevalence of sexual dysfunction during pregnancy and to determine its associated factors.

Methods This 6-month cross-sectional study adopted convenience sampling; inclusion criteria were healthy pregnant women, sexually active and living together with their partner for 3 months prior to recruitment into this study. Women who received advice to avoid sexual intercourse, with any medical illness and/or those conceived via assisted reproductive technology were excluded. Participants filled in a questionnaire consisting of demographic details and Malay Version Female Sexual Function Index Questionnaire. Data were analysed using SPSS 24.0; categorical data were analyzed by Chi-square and Fisher exact test.

Results One hundred pregnant women with a mean age of 31 + 4.31 years old participated. By using the cut-off FSFI score of 26.55, 81 (81%) participants were diagnosed to have sexual dysfunction. The mean FSFI score was 20.41 ± 8.45 (range 2.6–33.5; median 23.6). All the mean FSFI scores of first, second and third trimesters were low with 22.80 ± 10.67, 23.81 ± 7.18 and 18.74 ± 8.43, respectively. The mean score for desire, arousal, satisfaction and pain were significantly lower in the third trimester than earlier gestation. There was a significant difference in the incidence of difficulties in desire, arousal, lubrication, satisfaction and pain between first and second trimester combined, as compared to the third trimester of pregnancy. Trimester of pregnancy was found to have a significant association with the incidence of sexual dysfunction.

Conclusion Sexual dysfunction among pregnant women is a significant burden. Despite being a common health problem, it is often neglected.

Keywords Female sexual function index · Pregnancy · Sexual desire · Sexual dysfunction

Introduction

Sexual dysfunction refers to any difficulties experienced during one of the four phases of the sexual response cycle, namely: excitement, plateau, orgasm and resolution, that stop the individual or couple from feeling satisfied from the sexual act. Sexual dysfunction can be influenced by various factors including biological, psychological and social. Sexual dysfunction is not uncommon. It has been reported about 50% of women of all ages would suffer from sexual dysfunction during their lifetime [1]. Certain gynaecological conditions have been known to be associated with negative effects on sexual function, such as pelvic organ prolapse, endometriosis and chronic pelvic pain [2, 3]. Women with these problems may suffer from disorders of desire, arousal, lubrication, orgasm and dyspareunia since before pregnancy, which may potentially continue or worsen during pregnancy. There is a significant association between sexual dysfunction and physical and emotional status [4]. However, due to social taboo, this topic is often left unaddressed and less explored. Thus, many women who experience sexual dysfunction continue to suffer despite it causing a negative impact on their quality of life.

Pregnancy itself has been shown to affect women's sexual function [5–7]. Women's sexual function progressively

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declines throughout the gestation [8, 9] and the effect may persist up to a few months postpartum [10]. The emotional stress and other negative effects of having sexual dysfunction in a pregnant woman can potentially affect the maternal and fetal outcome.

Studies have shown that men chose other means to satisfy their sexual needs during their spouse's period of pregnancy [11, 12]. This indirectly shows that the issues of sexual dysfunction among the couples, when the spouse is pregnant, is a real and concerning issue. The rates may be higher in society where people avoid sexual issues due to the sociocultural factors [13]. This may have serious consequences in the couple's relationship, sometimes leading to conjugal infidelity and separation [14].

To date, there is still a lack of study on sexual dysfunction in pregnancy among Malay women in Malaysia. Hence, we aim to study the prevalence of sexual dysfunction during pregnancy and to determine its associated factors.

Method

Study design

This was a cross-sectional study that took place in an antenatal clinic in Klang Valley from June 2017 until December 2017.

Sample size calculation

Based from a study by Ahmed et al. [15] where prevalence of female sexual dysfunction (FSD) was estimated to be 68.8% (taken as 70% for the calculation) with significance level of 5% and absolute precision of 10%, using single proportion formula, the minimum sample size calculated was 81. Taking non-response of 20%, the estimated sample size required for this study was about 100 respondents.

Data sampling

Sampling method was convenience sampling. The inclusion criteria for the study were healthy pregnant women, who were sexually active and living together with their partner or husband for 3 months prior to their recruitment into this study. Women who received advice to avoid sexual intercourse (for any reason), had any medical illness and/or woman conceived via assisted reproductive technique were excluded from this study. Women with any psychological or psychiatric comorbidities were also excluded from this study. All suitable pregnant women were given a study information leaflet and informed consent was obtained from women who agreed to participate.

Data collection

Gestational date was confirmed by verifying the pregnant woman's expected date of delivery (EDD) with the early scan performed. Participants were categorised as first trimester (gestation less than 13 weeks), second trimester (gestation between 13 weeks to less than 26 weeks) and third trimester (gestation 26 weeks onward). Participants of the study were then asked to complete self-administered questionnaires which consisted of two parts. The first part was on the demographic details and the second part was the Malay Version Female Sexual Function Index (MVFSFI) Questionnaire. This questionnaire was the Malay Version [16] of a validated 19-item, multidimensional self-administered questionnaire looking into six domains. These include sexual desire (questions 1–2), sexual arousal (questions 3–6), lubrication (questions 7–10), orgasm (questions 11–13), satisfaction (questions 14–16) and pain (questions 17–19). They are required to answer the questions based on their sexual intercourse experience in the 4 weeks prior to the study.

The score for each domain ranged from 0 to 5 except for the questions 1, 2, 15, 16 in which scores ranged between 1 and 5 points. The composite score is the total of the answers to each question of a specific domain multiplied by a factor. The cut-off value of total FSFI score for the diagnosis of sexual dysfunction was accepted as less than 26.55, according to the literature [17]. The cut-off score for each domain were also used to identify women with any difficulties in any of the domain assessed. FSFI questionnaire has been shown to discriminate reliably women with a certain type of sexual difficulty and/or sexual dysfunction, and it has validated psychometric properties.

Data analysis

Data were analysed using SPSS 24.0 (SPSS Inc.; Chicago, IL, USA). Continuous data were analysed using descriptive statistic including mean, standard deviation, frequencies and percentages. Inferential statistics tests used were independent *t* test for continuous data, independent Chi-square and Fisher exact test for categorical data. Level of statistically significant was set at p value of < 0.05 and 95% confidence intervals were also reported.

Compliance with ethical standards

This study has obtained ethical approval from the Universiti Teknologi MARA Research Ethics Committee approval (Reference no: REC/126/15). Informed consent was obtained from all individual participants included in the study.

Table 1 The demographics features of the participants

Variables	Frequency, *n* (%)
Parity	
0	38 (38)
1	24 (24)
2	29 (29)
3	8 (8)
4	1 (1)
Trimester	
First	5 (5)
Second	29 (29)
Third	66 (66)
Body mass index (BMI) (kg/m^2)	
< 30	68 (68)
≥ 30	32 (32)

Table 2 The mean score of each FSFI domains

Domain (normal value)[a]	Mean ± sd	Median	Min	Max
Desire (≥ 4.28)	3.123 ± 0.916	3.3	1.2	4.8
Arousal (≥ 5.08)	3.087 ± 1.503	3.6	0.0	5.1
Lubrication (≥ 5.45)	3.669 ± 1.814	3.9	0.0	6.0
Orgasm (≥ 5.05)	3.560 ± 1.833	4.4	0.0	6.0
Satisfaction (≥ 5.04)	3.656 ± 1.504	3.6	0.8	6.0
Pain (≥ 5.51)	3.316 ± 1.847	3.6	0.0	6.0

[a]The cut off scores to determine the presence of difficulties on each domain of the FSFI [14, 15]

Results

This study recruited 100 pregnant women with the mean age of 31 ± 4.31 years old. The demographic features are presented in Table 1. By using the cut off FSFI score of 26.55, 81% participants (95% CI 73.18%, 88.82%) were diagnosed to have sexual dysfunction. The mean FSFI score was 20.41 ± 8.45 (range 2.6–33.5; median 23.6). Further analysis grouped by trimesters also found that the mean FSFI score of first, second and third trimesters were low with a score of 22.80 ± 10.67, 23.81 ± 7.18 and 18.74 ± 8.43, respectively. The mean score of each FSFI domain is shown in Table 2.

Further comparison between the mean score of each domain between women in earlier gestation (first and second trimester) and late gestation (third trimester) is demonstrated in Table 3. It shows that the mean score for desire, arousal, satisfaction and pain were significantly lower in the third trimester than earlier gestation.

Table 4 shows the relationship between the incidence of difficulties in each FSFI domains and the trimesters of pregnancy. There was a significant difference in the incidence of difficulties in desire, arousal, lubrication, satisfaction and pain, between the first and second trimester combined compared to the third trimester of pregnancy.

The relationship between the incidence of sexual dysfunction and demographic variables is shown in Table 5.

Trimester of pregnancy was the only demographic variables that had a significant association with the incidence of sexual dysfunction. We found that women in first and second trimester are 78% less likely to develop sexual dysfunction.

Discussion

Various literatures published have found that the prevalence of sexual dysfunction among pregnant women varies from 37 to 94% [8, 15, 18–23]. The prevalence of sexual dysfunction among pregnant women in this study was 81%, which is comparable to a study conducted among Turkish pregnant women which reported the prevalence of 87% in their study population [20]. However, our prevalence of 81% was much higher compared to the previous study conducted in Malaysia using the same questionnaire, which found a lower prevalence of 37% [22].

The wide range of prevalence of sexual dysfunction in pregnancy published in various studies may be due to the non-standardization of the cut-off point for the diagnosis of

Table 3 The comparison of the mean score of each FSFI domain between the trimesters

Domain	Trimester 1 and 2 (*n* = 34) Mean (sd)	Trimester 3 (*n* = 66) Mean (sd)	Mean difference (95% CI)	*t* statistics (*df*)	*p* value
Desire	3.688 (0.679)	2.836 (0.890)	0.851 (0.506, 1.197)	4.890 (98)	< 0.001*
Arousal	3.812 (1.064)	2.714 (1.565)	1.098 (0.505, 1.691)	3.673 (98)	< 0.001*
Lubrication	4.077 (1.664)	3.459 (1.862)	0.617 (− 0.136, 1.371)	1.626 (98)	0.107
Orgasm	3.765 (1.866)	3.455 (1.821)	0.310 (− 0.459, 1.079)	0.800 (98)	0.426
Satisfaction	4.388 (1.312)	3.279 (1.465)	1.109 (0.516, 1.702)	3.713 (98)	< 0.001*
Pain	3.929 (2.024)	3.000 (1.678)	0.929 (0.174, 1.684)	2.443 (98)	0.016*

*Statistically significant at $p < 0.05$

Table 4 Relationship between the incidence of difficulties in each FSFI domains and the trimesters of pregnancy

FSFI domains	Trimester 1 and 2 ($n=34$)	Trimester 3 ($n=66$)	Chi sq (*df*)	*p* value	OR (95% CI)
Desire					
Yes	28	65	8.97 (1)	0.003*	0.072 (0.008, 0.624)
No	6	1			
Arousal					
Yes	27	65	11.09 (1)	0.002*	0.059 (0.007, 0.506)
No	7	1			
Lubrication					
Yes	24	59	5.624 (1)	0.018*	0.284 (0.097, 0.835)
No	10	7			
Orgasm					
Yes	28	59	0.98 (1)	0.321	0.554 (0.170, 1.801)
No	6	7			
Satisfaction					
Yes	25	64	12.594 (1)	< 0.001*	0.087 (0.018, 0.430)
No	9	2			
Pain					
Yes	24	64	14.79 (1)	< 0.001*	0.075 (0.015, 0.367)
No	10	2			

*Statistically significant at $p < 0.05$

Table 5 The relationship between the incidence of sexual dysfunction and demographic variables

Variables	Sexual dysfunction $n=81$	Normal sexual function $n=19$	Chi sq (*df*)	*p* value	OR (95% CI)
Age					
< 30 years Old	34	6	0.69 (1)	0.41	1.567 (0.541, 4.539)
≥ 30 years old	47	13			
Trimester					
Trimester 1 and 2	22	12	8.89 (1)	0.003*	0.217 (0.076, 0.623)
Trimester 3	59	7			
Body mass index					
< 30 kg/m^2	55	13	0.002 (1)	0.965	0.976 (0.334, 2.858)
≥ 30 kg/m^2	26	6			
Parity					
0	32	6	0.822 (2)	0.663	1.422 (0.441, 4.582)
1	19	5			1.013 (0.288, 3.560)
> 1	30	8			Ref

*Statistically significant at $p < 0.05$

sexual dysfunction used by different authors in their studies. This study used the same cut off FSFI score of less than 26.55 to diagnose sexual dysfunction similar to a Turkish study [20] as recommended by Wiegel et al. [17] after cross validation of the FSFI Questionnaire was performed. However, the other study which found lower incidence of sexual dysfunction among pregnant Malay women, which used a validated Malay Version of FSFI Questionnaire, suggested a higher cut off value of 55 (from total score 95), but this lacked cross-validation [23]. Another factor which may have contributed to the high prevalence of sexual dysfunction in this study was the majority (66%) of the participants were in their third trimesters of their pregnancy compared to 5% and 29% were in first and second trimesters, respectively.

This study demonstrated that each FSFI domain score was low, and the mean score for desire, arousal, satisfaction and pain were significantly lower in the third trimester than earlier gestation (first and second trimester). This finding is consistent with the previous finding of sexual function decline throughout the advancement of gestation [7]. Sexual

interest, number of sexual intercourse and orgasmic activities are reported to reduce as soon as the women knew they were pregnant [18]. Another study also found that the FSFI scores in each domain and overall scores decreased progressively from each trimester of pregnancy to the next [24]. On the contrary, a relative increase in sexual function in second trimester was reported previously [15, 25], which could be due to the dissipation of early pregnancy symptoms such as nausea and vomiting [26] which is usually associated with feeling of lethargy, diminishing threat of early pregnancy loss and increased vascular congestion [25, 27, 28]. However, this was not found in this study.

Further reduction in sexual function in the third trimester demonstrated in this study was similar to findings in previous studies by Erbil et al. [29], Corbacioğlu-Esmer et al. [18], Yildz et al. [30]. and Aslan et al. [7]. In addition, linear regression analysis performed in a previous study showed that being in the third trimester would adversely affect the overall FSFI scores [18]. There are various factors that potentially contribute to the reduction in sexual function further in the third trimester. These include lack of libido, woman's negative self-perception of decreased attractiveness, feeling tired, anxiety or fear of rupturing the membrane and starting off the labour process. High level of anxiety has been shown to negatively influence the sexual function. Sexual intercourse can also be painful or uncomfortable due to the difficulty of finding an optimal position secondary to [31] increased body weight. Furthermore, the pregnant women's sexual partner may lose interest in sexual interaction because of the women's physical changes or fear of causing harm to women and fetus. This has been shown in a study which also reported a high prevalence of sexual dysfunction in pregnancy, and 61% of the participants regarded sexual intercourse during pregnancy as risky [32].

Women who are overweight (BMI > 25) have also been demonstrated to have poorer sexual function in pregnancy compared to those with normal weight [33] and obesity has a negative impact on sexual functions in pregnant women [34]. However, there was no significant correlation between body mass index (BMI) and sexual function found in this study, which is similar to the findings by Aydin et al. [13].

Parity was demonstrated to have a negative impact on the sexual function during pregnancy [13], however, there was no significant correlation between parity and sexual function found in this study, similar with findings from Ribeiro et al. [33]. In this study, there was a significant association between trimesters of pregnancy and incidence of difficulties in certain FSFI domains, which were desire, arousal, lubrication, satisfaction and pain. The mean score for arousal was the lowest, followed by desire. We also found that the changes of mean scores between first and second trimesters of pregnancy for desire, arousal, lubrication and orgasm were not significant, but deterioration in sexual function is more marked in the third trimester. It was also previously reported that lubrication was intensified during pregnancy, however, it was not demonstrated in this study.

Limitation

The major limitation of this study was that the participants were recruited from a single antenatal clinic, hence it may not be representative of all pregnant women in the population. This study also did not explore the presence of male sexual dysfunction though it may potentially contribute to female sexual dysfunction. Furthermore, the prevalence of erectile dysfunction in Malaysia is high [35], hence information on the presence of male sexual dysfunction may provide valuable information to interpret the high prevalence of female sexual dysfunction in this study.

This study also did not enquire on the education level of the participants and their partner, duration of marriage and presence of sexual dysfunction prior to pregnancy. This information would have been beneficial to assess whether there is any significant correlation with the incidence of sexual dysfunction.

Conclusion

In conclusion, sexual dysfunction among pregnant women is a significant burden. Despite being a common health problem, it is often neglected. Further measures to address this problem are crucial to ensure improved sexual health and overall wellbeing of pregnant women.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. (Reference no: REC/126/15). This article does not contain any studies with animals performed by any of the authors.

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