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Association of perceived male sexual dysfunction and sexually transmitted disease to female sexual function among Indonesian women

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ABSTRACT

BACKGROUND Male sexual dysfunction (MSD)'s impact on female partners is challenging to understand. Male erectile dysfunction (ED) and ejaculation disorder likely affect female sexual function. This study aimed to examine the prevalence of female sexual dysfunction and disorder as well as the relationship between perceived MSD and female sexual function using the validated Indonesian short version of the 6-item Female Sexual Function Index (FSFI-6).

METHODS This cross-sectional study was conducted at Cipto Mangunkusumo Hospital, Jakarta, Indonesia, from February 2018 to February 2019. About 702 Indonesian married women, including patients, visitors, and medical and nonmedical staff, provided the sociodemographic, FSFI-6, quality of life, and sexual function (ED, ejaculation disorder, and desire problems), and sexually transmitted disease (STD) data. The association between categorical variables was evaluated using Fisher's test. Logistic regression was used for multivariate analysis, and a *p*-value of 0.05 was considered statistically significant.

RESULTS Among 702 women, about 242 had sexual dysfunction (34.5%), 20 had sexual disorder (2.8%), 172 had low desire (24.5%), 72 had low arousal (10.3%), 253 had orgasmic function (36.0%), and 575 had sexual pain (81.9%). The respondents reported their partners' STD, desire problems, ED, and ejaculation disorder. Female sexual disorder and low desire were associated with perceived ED. Female sexual disorder was associated with STD (Wald = 10.3, $p = 0.001$) and desire problems (Wald = 6.89, $p = 0.008$). No other MSD was associated with female sexual function.

CONCLUSIONS Perceived STD and male desire problems affected female sexual disorder.

KEYWORDS sexual arousal, sexual behavior, sexual health

According to the World Health Organization (WHO), sexual health encompasses sexual well-being and respect for human rights, development, and maturation.[1] Decreased sexual function is intertwined with decreased quality of life (QoL) and welfare. Female sexual dysfunction (FSD) includes an unpleasant situation disrupting a woman's ability to enjoy a satisfying sexual life.[2] The following three classifications are commonly used in defining FSD: a) sexual complaints as sexual function-related discomfort expressions; b) sexual dysfunction as an interruption of at least one phase in the sexual response cycle or painful sexual activity; and c) sexual disorder as a combination of sexual dysfunction and personal distress related to sexual dysfunction.[3]

Desire, arousal, orgasmic function, and pain-related issues are the four components of FSD.[4,5] Sexual dysfunction is more prevalent among older women,

whereas sexual complaints are more frequent in young women. Sex-related distress is also more common in premenopausal women than that in menopausal women.[3,6] Satyawan et al[7] examined FSD among medical and nonmedical professionals in Indonesia and disclosed that 19/206 participants (9.2%) had sexual dysfunction. Conversely, Taher et al[8] reported a 15.2% prevalence of FSD in Jakarta. In Western countries, the prevalence is substantial, with rates of 43–88% in the USA and 22% in Europe.[9] Based on population-based epidemiological surveys of FSD involving 6,000 women in Beijing, the prevalence of adults with FSD was 63.3%, and 30.3% did not seek care.[10] These results were quite similar to sexual dysfunction in women originating from biological (post-accident conditions or postoperative injuries, blood flow disorders, hormonal disorders, the presence of diseases in the reproductive organs, and side effects of certain drugs), psychological (the existence of certain psychological problems in the past or present, such as depression, anxiety disorders, problems with body image and self-esteem, and stress), and interpersonal factors (incompatibility or conflict with a partner).[3,6] The sexual condition of a partner is also a factor that may affect FSD. According to Nelson et al,[11] male sexual dysfunction (MSD) can impact partners in various ways, including reducing general happiness, generating feelings of unattractiveness, causing feelings of rejection and guilt, increasing anxiety, and impairing intimacy.

The impact of MSD on female partners remains unclear. Presumably, erectile and ejaculation disorders play a notable role in FSD.[9,10] To the best of our knowledge, this is the first study on MSD and its relationship with female sexual function in Indonesia, which we believe differs in sociocultural and perception aspects. Using a validated Indonesian short version of the 6-item Female Sexual Function Index (FSFI-6), this study aimed to assess how perceived MSD (including erectile dysfunction [ED], ejaculation disorder, and desire problems) and sexually transmitted diseases (STDs) affect female sexual function.

METHODS

This cross-sectional study was conducted at Cipto Mangunkusumo Hospital, Jakarta, Indonesia, from February 2018 to February 2019. Data were obtained from 702 Indonesian married women, including patients, visitors, and medical and nonmedical staff, using a consecutive sampling method, with a minimum of 422 participants. This study was approved by the Ethics Committee of the Faculty of Medicine, Universitas Indonesia (No. 1023/UN2.F1/ETIK/2017). All respondents were adults aged >18 years; sexually active; able to read, write, and communicate well; and agreed to participate in this study. Women with psychiatric problems and no sexual activity and those who did not fill out all questionnaire items were excluded. All the respondents provided written informed consent.

FSFI-6

The collected data consisted of sociodemographic profiles, the FSFI-6, and participants' perceptions of male sexual function. FSFI-6 comprised of six categories, namely desire, arousal, lubrication, orgasm, satisfaction, and pain, in addition to QoL. Inquiries into any distress in their sexual lives were intended to assess their QoL.[12] Participants perceived their spouse's sexual function, whereas the Indonesian version of the FSFI-6 assessed their own sexual function. Sesari et al[12] performed a linguistic validation of the employed questionnaire, with a Cronbach's alpha of 0.664 and a standardized Cronbach's alpha of 0.714.

Perceived STDs and male sexual function include ED, ejaculation disorder, and problems in initiating desire. The assessed clinical symptoms of male STD included vesicular lesions over the affected areas, pruritus, dysuria, rash, lower urinary tract symptoms, and purulent discharge, as well as accompanying fever or malaise. Perceived male sexual function was assessed by guiding participants to complete the questionnaire. Participants were allowed to ask questions if they did not understand the terminology in the questionnaire, such as ED or libido disorder.

The results were categorized as follows: having sexual disorder (the participant had an FSFI-6 score of ≤19 and answered "mostly dissatisfied," "unhappy," or "terrible" regarding QoL); sexual dysfunction (participants with an FSFI-6 score of ≤19 or one or more interrupted sexual phases as outlined in FSFI-6, desire [item no. 1], arousal [item no. 2], orgasm [item no. 4], and pain [item no. 6]); low desire (participants who answered question no. 1 with "low," "very low," or "not at all"); low arousal (participants who answered question no. 2 with "low," "very low," or "not at all"), low orgasmic function (participants who answered question no. 4 with "sometimes," "a few times," or "almost never or never"); and sexual pain (participants

who answered question no. 6 with "sometimes," "most times," or "almost always or always").[4]

Data collection

We collected demographic data on age, marital status, educational level, body mass index (BMI), smoking and alcohol consumption habits, history of sexual abuse, menstrual and obstetric status, history of pelvic surgery, and urinary/gynecological problems. The BMI categorization was based on the WHO classification for the Asia-Pacific region: <18.5 kg/m^2, underweight; 18.5–22.9 kg/m^2, normal weight; ≥23–24.9 kg/m^2, overweight; ≥25–29.9 kg/m^2, obese I; and ≥30 kg/m^2, obese II.[13]

Meanwhile, the QoL of the respondents was measured using the QoL question of the International Prostate Symptom Score (IPSS). The QoL question utilizes a 7-point Likert scale, with responses ranked from best to worst as "delighted," "pleased," "mostly satisfied," "mixed," "mostly dissatisfied," "unhappy," and "terrible."[14] The respondents were asked to indicate their perception of living with their current sexual life condition using the Likert scale, in accordance with the QoL evaluation in IPSS.

Statistical analysis

The distribution of the numerical data was evaluated using the Kolmogorov–Smirnov test. The unpaired *t*-test or Mann–Whitney *U* test, depending on whether the data were normally distributed, was used to determine the mean differences between categorical and numerical variables. Alternatively, Fisher's exact test or the chi-square test was used to determine the association between categorical variables. Logistic regression was used in multivariate analysis, with a cut-off *p*-value of 0.25 for either continuous or categorical data. Adjusted odds ratios (AORs) were calculated by adjusting for significant variables in the multivariate analysis. Statistical analysis was performed using SPSS software for Macintosh version 20.0 (IBM Corp., USA). Statistical significance was set at $p<0.05$.

RESULTS

Participant characteristics are presented in Table 1. Among 702 women, 242 (34.5%) had sexual dysfunction, 20 (2.8%) had sexual disorder, 172 (24.5%) had low desire, 72 (10.3%) had low arousal, 253 (36.0%) had orgasmic dysfunction, and 575 (81.9 %) experienced

Table 1. Characteristics of the participants

Characteristics	n (%), N = 702
Age (years), median (IQR)	37 (20–60)
Marital age (years), median (IQR)	25 (16–50)
BMI (kg/m^2)	
Underweight	24 (3.4)
Normal	207 (29.5)
Overweight	119 (17.0)
Pre-obese	254 (36.2)
Obese	98 (14.0)
Educational background	
Elementary school	4 (0.6)
Junior high school	15 (2.1)
High school	110 (15.7)
Diploma	88 (12.5)
Bachelor	443 (63.1)
Master/Doctor of Philosophy	42 (6.0)
Current smoking habit	19 (2.7)
Current alcohol consumption habit	17 (2.4)
Urinary diseases	8 (1.1)
Urinary infections	45 (6.4)
Gynecologic diseases	14 (2.0)
Gynecologic infections	56 (8.0)
Pelvic surgery	137 (19.5)
Menstrual and obstetric history	
Dysmenorrhea	124 (17.7)
Menopause	59 (8.4)
History of sexual abuse	1 (0.1)
FSFI total score, median (IQR)	21 (3–29)
Sexual dysfunction	242 (34.5)
Sexual disorder	20 (2.8)
Low desire	172 (24.5)
Low arousal	72 (10.3)
Low orgasmic function	253 (36.0)
Sexual pain	575 (81.9)
Partner with STD perceived from female participants	5 (0.7)
Partner's sexual function perceived from female participants	
Desire problems	10 (1.4)
ED	8 (1.1)
Ejaculation disorder	17 (2.4)

BMI=body mass index; ED=erectile dysfunction; FSFI=female sexual function index; IQR=interquartile range; STD=sexually transmitted disease

Table 2. Bivariate analysis between FSD and MSD

MSD perceived by female partner	FSD (N = 702)											
	Sexual disorder	*p**	Sexual dysfunction	*p**	Low desire	*p**	Low arousal	*p**	Low orgasmic function	*p**	Sexual pain	*p**
STD	25.15 (3.96–159.84)	**0.007**	7.71 (0.86–69.40)	0.051	4.69 (0.78–28.28)	0.098	5.97 (0.98–36.35)	0.085	7.20 (0.80–64.72)	0.059	0.33 (0.05–1.98)	0.224
Desire problems	9.36 (1.85–47.24)	**0.030**	2.90 (0.81–10.37)	0.101	3.14 (0.90–10.99)	0.071	0.97 (0.12–7.78)	1.000	1.79 (0.51–6.24)	0.508	0.51 (0.13–2.00)	0.399
ED	8.82 (1.76–44.24)	**0.033**	1.14 (0.27–4.82)	0.594	4.69 (1.31–16.80)	**0.018**	1.25 (0.15–10.33)	0.581	0.59 (0.12–2.94)	0.718	1.55 (0.19–12.73)	1.000
Ejaculation disorder	4.94 (1.05–23.23)	0.081	1.34 (0.50–3.57)	0.068	1.29 (0.45–3.72)	0.579	0.54 (0.07–4.14)	1.000	1.25 (0475–3.32)	0.799	0.71 (0.23–2.22)	0.527

ED=erectile dysfunction; FSD=female sexual dysfunction; MSD=male sexual dysfunction; STD=sexually transmitted disease
Data are presented as odds ratios (OR) (95% confidence interval [CI]). *Fisher's test, a *p*-value of 0.05 was considered statistically significant

sexual pain. The participants also stated their partners' conditions (Table 1).

Further analysis revealed a significant proportional difference in sexual disorder among females whose partners had STDs and desire problems. Perceived ED was found to be associated with female sexual disorder and low desire. No associations were identified between other types of MSD and FSD, low desire, low arousal, low orgasmic function, or sexual pain (Table 2).

The multivariate analysis showed that women whose partners contracted an STD (AOR = 21.68 [95% confidence interval (CI) = 2.58–182.25], p = 0.007) or experienced desire problems (AOR = 18.00 [95% CI = 2.11–153.43], p = 0.008) had a higher risk for having female sexual disorder.

DISCUSSION

The prevalence of FSD in the current study was higher than that reported in a study conducted in 2014. The previous study involved 103 medical and 103 nonmedical professionals and showed a 9.2% prevalence of FSD in Indonesia. Moreover, it demonstrated at least one interrupted phase in the sexual response cycle.[7] Individuals with sexual dysfunction may not always experience personal distress. The clinical significance lies in the fact that out of approximately 242 participants who experienced sexual dysfunction, only 20 reported consequent personal distress. However, only a small percentage of the participants believed that their conditions caused personal distress and reduced their QoL.[7] Indonesian society considers sex-related talk culturally taboo; thus, people, especially women, usually try to avoid the topic. Morton et al[15] asserted that East Asian societies have historically viewed sex as primarily reproductive in nature. Asian women in the United States reported much lower levels of sexual desire and arousal and higher degrees of sexual pain than Euro-American women and were far less likely to report sex as vital.[15]

Among 702 women who participated in this study, 5 (0.7%) reported having a partner with an STD, 10 (1.4%) reported their partner's desire problems, 8 (1.1%) reported ED, and 17 (2.4%) reported an ejaculation disorder. A study by Jiann et al[16] in Taiwan, which involved 779 males (only 632 fully participated), reported 95 (15%) cases of ED based on the International Index of Erectile Function. Among these cases,

27.7% consisted of self-reported ED, and only 10.0% were reported by the partners. In 59% of cases, the perceptions of the severity of the male partners' ED by men and women were similar and highly substantially linked, with a chi-square *p*-value of $p<0.001$.[17]

In the present study, sexual dysfunction, low desire, low arousal, low orgasmic function, and sexual function were not associated with impaired perceived male sexual function. Female sexual disorder was found in women whose partners had STDs or desire problems. Furthermore, the multivariate analysis showed STDs and desire problems as contributing factors to developing sexual disorders. The odds of developing sexual disorders in women were 21.68 times higher in women whose partners had STDs and 18.00 times higher in those whose partners had desire problems. Since only female partners perceived the STDs, there might be a varying degree of perception, from curable to non-curable STDs. STDs usually impair the anatomy of the male genitalia and cause negative stigma in society (e.g., HIV/AIDS). These factors are believed to impair not only female sexual function but also QoL.

In Iran, the most frequent sexual dysfunction was the sexual desire problem (49.2%), while sexual pain disorder occurred in approximately 35.2% of all participants.[18] These results differed from those of Rizvi et al,[19] whose findings suggested libido and lubrication disorders as the most impaired domains. In contrast, the present study found that most females of a relatively young age experienced sexual pain. Presumably, the sociocultural background of Indonesian women shaped their perspectives on sexual discussion (e.g., talking about sexual fantasy or discomfort) as taboo, thus preventing them from disclosing the matter to their male partners and causing discomfort during sexual activity.

The lack of sex education in schools leads to a limited understanding of sexual anatomy and function. Jiann et al[16] showed that females lacked understanding of their partners' sexual functions. Elterman et al[17] also concluded that communication is essential for the uniformity of men's perceptions of sexual dysfunction. This issue may incite ignorance, potentially leading to lower participation in the partners' sexual health. In contrast, when males encounter sexual problems, they tend to avoid intimacy or sexual activities, resulting in infrequent sexual activity and impaired sexual relations.[20]

According to Nelson et al[11] MSD could affect partners by decreasing general happiness; generating feelings of unattractiveness, rejection, and guilt; causing anxiety, and impairing intimacy. These factors could impair not only one phase but also several phases of female function, which would affect the male partner's sexual dysfunction and cause a vicious cycle. Even in mild to moderate severity cases, ED was associated with sexual difficulty in female partners, especially in the desire and lubrication domains.[21] This finding was similar to that of the present study, which revealed that ED was associated with female sexual disorder and low desire. Cabral et al[22] observed less sexual activity among healthy women whose partners had ED. In this cohort, ED was the most frequent reason for reduced sexual activity in women aged <45 years, indicating that couples share sexual dysfunction. Martín-Morales et al[23] also showed an improvement in the sexual QoL of female partners following vardenafil treatment in men with ED. Furthermore, significant improvements in sexual arousal, lubrication, orgasm, satisfaction, and pain were found after their partners underwent ED treatment.[23] Since perceived MSD in the present study was lower than the actual prevalence reported in another study, females should understand sexual health information regarding MSD to improve sexual function and QoL in both parties. Both males and females contribute to FSD, either through organic or psychogenic factors. Although most of the participants were bachelors who surmised that they understood their partners' sexual health, self-administered questionnaires by their partners could provide more objective data.

Little is known about whether FSD affects MSD. Zhang et al[24] found that only the physical pain disorder of the wife was associated with the husband's ED; however, other domains, such as loss of interest in sex, finding sex unpleasant, lubricating problems, failure to achieve orgasm, delayed orgasm, and lack of lubrication, were not associated with ED in husbands. These findings, however, were thought to conflict with those of earlier research. Another study conducted in Taiwan with 632 sexually active couples found a minor to moderate link between the total female sexual function and its domains, and the erectile function of men.[16] Grondhuis Palacios et al[25] reported significant weak to strong relationships between female sexual function and their male partners' erectile function following radical prostatectomy for prostate cancer.

This study had several limitations. Using a validated questionnaire would have yielded more reliable results for MSDs. Additionally, comparing the actual results of MSD with perceived dysfunction would better assess the discrepancies. The cross-sectional design made establishing a causal relationship between MSD and FSD difficult. Therefore, prospective or retrospective cohort studies are warranted to establish causality between females and MSD. The included subgroups were too small for statistical analysis, which resulted in insignificant findings.

In conclusion, the perception of STDs and desire problems in males by females affected FSD. Raising awareness of sexual health information regarding MSD among female partners could lead to improved sexual function and QoL in both partners.

Conflict of Interest

Harrina Erlianti Rahardjo is the editorial board member but was not involved in the review or decision making process of the article.

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