



Female Sexual Dysfunction in Asian Women with Diabetes

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Abstract

The prevalence of diabetes is increasing globally, especially in Asia. Prevalence of diabetes in Asia is increasing at a higher rate in comparison to Western countries with an increasing trend reported in the younger generation (20-39 years old). This trend has similarly been reported in our Malaysian diabetic population, of which the general prevalence is 17.5%. This population experiences longer disease duration and are at greater risk of developing complications of diabetes at an earlier stage in life. Sexual dysfunction has been established as a common long-term complication of diabetes, affecting both men and women. Evidence shows that some Asian countries experience greater rates of female sexual dysfunction compared to their Western counterparts and this is likely attributed to cultural differences and other socioeconomic factors. However, these studies are very limited and need to be investigated at a greater scale. The aim of this report is to identify gaps in the literature regarding female sexual dysfunction among Asian women with diabetes. Local cultural and religious values maintain that sexual issues should not be discussed openly, even in a clinical setting. This paper may pave the way for future studies to be carried out, as addressing sexual dysfunction is a vital part of diabetes care. In addition, various studies have identified depression as a conclusive predictor of female sexual dysfunction in diabetic women. There is a possibility of a link between diabetes distress and female sexual dysfunction, which requires further investigation.

Keywords: Diabetes, Diabetes mellitus, Female sexual dysfunction

Introduction and background to Diabetes and Female Sexual Dysfunction (FSD)

Diabetes in Asians

The prevalence of diabetes is increasing worldwide, particularly in Asia. The International Diabetic Federation regularly updates the Diabetes Atlas with data on diabetes prevalence worldwide and showed that China and India currently have the highest number of people with diabetes, which is 116.4 million and 77 million, respectively. In the year 2045, the projected values are expected to almost double in India. South-East Asia currently has a prevalence of 11.3% and the value is expected to increase to 12.6% in the year 2045. This pattern of increasing prevalence over the last 20 years is mirrored in many Asian countries.¹ A recent review studying diabetes among Asians found a rise in prevalence of diabetes among them whereas diabetes prevalence in Western countries were more stable. This is due to an increase in the rate of those with undiagnosed diabetes and impaired glucose tolerance. Therefore, it

is evident that the rates of diabetes in Asian countries are escalating at a more rapid rate compared to the rest of the global population.² There are a number of reasons for this such as increasing obesity rates, young age of onset of diabetes, increased propensity for visceral obesity, impaired insulin secretory capacity relative to insulin resistance and other lifestyle or environmental factors.³

Globally, statistics have shown an increase in the proportion of young- to middle-aged individuals diagnosed with diabetes.⁴ As mentioned earlier, this phenomenon is more commonly seen in Asian countries. For example, the estimated prevalence of diabetes in individuals aged 20-39 years old in the United States, UK, and Canada are 13.9%, 6.9%, and 6%, respectively. In contrast, the percentage of subjects with diabetes from a similar age group in China, Taiwan, and South Korea are 15.1%, 9.59%, and 10%, respectively.⁵ In Malaysia, the current prevalence of diabetes is 17.5%, which has more than doubled since the year 1996.⁶ In the National Health &

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Morbidity Survey (2015), the greatest increase of diabetes prevalence was seen in the younger age group between 20–24 years old (5.9%) and 25–29 years old (8.9%). These findings were similarly seen in those with undiagnosed diabetes.^{2,7}

Female sexual dysfunction

Impaired sexual function in men is well-documented as it has been established that erectile dysfunction is a common complication of diabetes and a result of poor diabetic control. Sexual dysfunction may also be a typical presenting complaint in a diabetic patient and can be a predictor for vascular function. However, sexual issues among women with diabetes has not received as much attention as compared to their male counterparts.⁸

Female sexual dysfunction is defined as disorders of sexual desire, arousal and orgasm, and pain, which leads to personal distress.⁹ The definition of FSD has been a dynamic one with various classifications, however the Diagnostic and Statistical Manual-(V) characterizes sexual health as three entities: disorders of sexual interest and arousal; difficulty with orgasm; and disorders associated with genito-pelvic pain/penetration.¹⁰ In diabetic women, studies have shown that diabetes most frequently alters sexual arousal which results in reduced genital sensitivity and poor lubrication. FSD is a multifactorial and varied condition involving biological, psychological, interpersonal, and sociocultural factors.¹¹ Systematic reviews have uncovered a series of predictors of FSD which include physical health, psychological health, race/ethnicity, number of premarital partners, religion, low SES, illiteracy, unemployment, communication with partner and attitude towards sexuality.^{12,13}

In 2004, Global Study of Sexual Attitudes and Behaviours (GSSAB) published a significant amount of data on the association between FSD and gender inequality. A gender-equal sexual regime was seen typically in Western countries while a male-centred sexual regime was seen in Asian countries. A gender-equal sexual regime focuses on equality in intimacy between two romantic partners whereas the male-centred sexual regime views intimacy as a reproductive duty in which the man is in control of the woman's sexual conduct. This results in the man ignoring the relational aspect of sex and sexual pleasure of the woman. Evidence shows that women with a gender equal sexual regime reported a sexual satisfaction of 64.4–91.1% compared to women experiencing an Asian male-centred sexual regime with a sexual satisfaction of 39.7–61.3%.¹⁴ This demonstrates a significant difference in the rates of sexual dysfunction due to the variation among cultural sexual practices.

However, it is important to note that not all risk factors are universal. For example, a high education level is a protective factor with lower rates of FSD in countries such as the US. However, rates of FSD were greater among young, educated Chinese women as they likely had a better perception of their sexual health. They possessed a greater understanding of their sexual needs and experienced dissatisfaction when they were not met.^{15,16}

Prevalence of female sexual dysfunction in diabetes

Female sexual dysfunction itself is a common issue worldwide and occurs in an estimated 30-70% of the general population, and

may even go up to 84% in certain studies.^{17,18} An international survey consisting of 13 882 women aged 40-80 years old found that 39% of sexually active women experienced some form of disruption with sexual activity.¹⁹ In Asia, more than 30% of women complained of at least one symptom of sexual dysfunction compared to more than 20% of men.²⁰ Most studies have shown that prevalence of FSD is higher in diabetic women as compared with non-diabetic women.²¹ Sexual dysfunction can cause significant distress to a person's physical, mental, emotional and social wellbeing. It is important to address these issues in patients in order to reduce complications and improve quality of life.

Previous research shows that sexual dysfunction in men can be associated with older age, obesity, co morbidities, longer diabetes duration, poor metabolic control and smoking.²² In comparison, studies involving women demonstrate depression as the sole strong predictor of sexual dysfunction.^{17,23} A cross-sectional study involving Dutch men and women found an FSD prevalence of 68.5% and 70% respectively. The important correlates involving the study participants included higher age, clinical depression and one or more diabetes-related complications, with clinical depression being the strongest association. In this study, most women were also post-menopausal²⁴ and Eposito et al, 2010 reported that postmenopausal women with type 2 diabetes mellitus (T2DM) have been reported to experience higher rates of sexual dysfunction (64%) as compared to all women (41%).²¹

A systematic review carried out in 2019 looked at a sample size of 3892 women aged 18-70 years old. Prevalence among women with T2DM was 68.6% based on the meta-analysis with the highest prevalence noted among Iranian women (68.6%) and the lowest among Italian women (17%). This further establishes the relationship between FSD and T2DM.²⁵

Tools to assess female sexual dysfunction

In 2015, the SAD-MEN questionnaire was developed to assess sexual dysfunction in South-East Asian men with diabetes. This population of men experience other forms of sexual dysfunction including premature ejaculation. The International Index of Erectile Function-5 (IIEF-5) mainly assesses erectile dysfunction and does not focus on other sexual disorders such as ejaculatory disorders. As a result, this questionnaire was constructed based on the diverse Malaysian population to assess sexual dysfunction in a more constructive and comprehensive manner.²⁶ Similarly, we know based on the literature that sexual dysfunction occurs just as commonly in diabetic women.

FSD is typically considered a very sensitive issue among Middle Eastern and Asian communities. Limited literature is available regarding FSD in diabetic women in these countries. The best way to assess FSD in this population is through a self-reported questionnaire.²⁷ One of the assessment tools for FSD is the Female Sexual Function Index (FSFI) which is currently one of the widest tools used to assess sexual function in women due to its simplicity, high validity, and reproducibility. The questionnaire comprises of 19 questions and explores 6 domains of sexuality including desire, arousal, satisfaction, lubrication, orgasm, and pain preceding or

during the sexual intercourse. It assesses sexual function in the past 4 weeks prior to doing the questionnaire. FSD is usually indicated by an FSFI score < 26.5.²⁸ A recent Egyptian study measured sexual dysfunction in type 1 and type 2 diabetic women with the FSFI questionnaire. FSFI score in both groups were significantly lower compared to the control group. Furthermore, FSFI mean scores were lower in the type 1 DM group compared to the type 2 group.²⁹

In the local Malaysian population, we have the Malay version of Female Sexual Function Index (MVFSFI) questionnaire which works well within the Malay-Muslim population of Malaysia. The MVFSFI is a Malay-translated version of the FSFI and was proven to be validated questionnaire that was accepted by the local Malaysian population.

Female Sexual Dysfunction (FSD) in Asian Women with Diabetes Mellitus (DM)

In a Japanese female cohort study, 23.3% of women with DM reported sexual dysfunction.³⁰ In a Chinese study, frequency of FSD in the T2D group was 75.0%, much higher than in the control group. In comparison to other studies carried out in different countries such as the United States, Belgium, Jordan, Italy and Iran, they found that the prevalence was relatively high and speculated the variation could be due to cultural and racial differences, including perceptions towards sexual activities.³¹ The role of culture in female sexual dysfunction is a significant one as many Asian communities have different perceptions of sex. Among many, sex is viewed as a marital duty due to religious and cultural influences. Therefore, sex outside of marriage may be seen as unholy and taboo which prevents the open discussion of sexual dysfunction by unmarried and sexually active women. Not only that, but certain Asian cultures also perceive women as the passive and subjugated party in a marital relationship. Male partners are often reluctant to allow their spouse to discuss sexual issues with a health care provider, as seen commonly among South Asians. Many female partners themselves are reluctant to attend a clinic to discuss sexual issues, especially with a health care provider of the opposite sex.³²

Certain religious beliefs with traditional values may restrict access to sexual knowledge and emphasise on limited sexual behaviours which will disrupt sexual functioning by manipulating emotions particularly related to guilt and anxiety. Cognitive anxiety itself has also been shown to physically manifest in sexual dysfunction.^{33,34}

FSD in Malaysian women with DM

In the local Malaysian population, a study found that about 25-30% of women may experience one or more types of sexual dysfunction.^{35,36} Female sexual dysfunction among Malaysian women is a topic that has been poorly explored due to several reasons. Firstly, sexual issues are not regarded as important to Malaysian women as other health issues.³⁵ Secondly, the majority of Malaysians are Muslim, a religion that discourages the open discussion of sexual practices.³⁷ Additionally, the conservative sociocultural norms in Malaysian society results in women feeling embarrassed to discuss sexual issues as they are considered somewhat taboo.³⁵ In the re-

view of literature, only 3 studies had investigated FSD in Malaysian women with DM.

A preliminary cross-sectional study was carried out to investigate prevalence of FSD in Malay women with Type 2 DM using the Malay version of Female Sexual Function Index (MVFSFI).³⁸ This study was published in a relatively low-index journal. The study participants were Malay-Muslim women aged 20-60 years old, married and receiving ongoing treatment for Type 2 DM, which fit the target population that was defined. However, sexual activity of the women was not documented which can become an issue as the questionnaire applies to sexual activity in the previous 4 weeks. It is also not clear if participants were randomly sampled from their community. Exclusion criteria included chronic illness not including co-morbidities such as hypertension, psychiatric disorders, being pregnant or in 2-month post-partum period. Only 22 out of 238 patients obtained from the database responded to the questionnaire which is a relatively small sample size indicating poor validity/reliability of the results as they do not represent the population. The reasons for that were that half of the patients were unreachable by telephone. Other reasons included work commitment and disapproval of husband regarding involvement in the study. Informed consent was obtained from the study participants, and ethical approval given by the Institute for Health Behavioural Research (IHBR).

Results found the prevalence of FSD to be 18.2% which is lesser compared to other studies, likely due to the small sample size. The most common form of sexual dysfunction affecting 40.9% of the participants was sexual desire disorder followed by sexual dissatisfaction (36.4%) sexual arousal disorder (22.7%), sexual pain (22.7%), poor lubrication (18.7%) and orgasmic disorder (4.5%). The only positive correlates to sexual dysfunction were the increasing age of participants. It is important to note that increasing HbA1c levels was only correlated with reduced sexual satisfaction, but not with the other domains hence establishing in this study that HbA1c levels do not correlate with sexual function. Obvious limitations of the study as discussed by the authors includes a small sample size, the lack of a control group for comparison, frequency of sexual activity along with health status and sexual function of spouse. Additionally, the authors also did not measure the respondents' psychological status³⁹ nor did they take into account other social factors such as education level, westernization and religiosity.

Similarly, eighty-one women in 3 different clinics in Selangor saw that prevalence of sexual dysfunction among Malay-Muslim females was 27.2%. The most common symptom among these women is sexual dissatisfaction observed in almost half of these women (48.1%), followed by poor libido (45.7%). Sexual arousal disorder was seen in 25.9%, vaginal dryness (23.5%) and vaginal discomfort (21.0%). Orgasmic dysfunction was found in only 12.3%.⁴⁰

A different study aims to investigate prevalence and associated factors of orgasmic dysfunction among Malay diabetic women in Malaysia. This study included 347 women of at least 18 years old with the inclusion criteria of: married women with a 6-month preceding heterosexual relationship, regular menses. The sample size is large enough to produce relatively valid and reliable results.

Exclusion criteria included chronic illness such as stroke, end-stage renal disease and chronic immobilisation, pregnancy, post-partum, post-menopausal and those on hormonal contraceptives. The patients were obtained via systematic random sampling and divided into equally a diabetic and non-diabetic group. Written informed consent was obtained and ethical approval given. To assess orgasmic dysfunction, orgasm subscale of the MVFSFI was used by the authors. Important clinical factors such as age, employment, duration of marriage, husband's age, and body mass index, presence of diabetes, hypertension, dyslipidaemia, and education level were included in the Multiple Logistic regression. Prevalence of orgasmic dysfunction among Malay women was 13.3% and 10.3% in T2DM and control group; respectively however it was not statistically significant. Positive associations with orgasmic dysfunction were unemployment and lower academic status. Limitations of this study includes non-investigation of psychological factors such as stress, anxiety and depression.⁴¹ Additionally, the partners' sexual health and functioning was also not looked into which could be a confounding factor.⁴² Across all 3 studies, we can see a variation of orgasmic dysfunction ranging from 4.5–13.3%. Orgasmic dysfunction seems to be the least common sexual health problem for Malay diabetic women.

Diabetes-Related Distress (DRD) and Female Sexual Dysfunction (FSD)

It is established that patients with diabetes mellitus (DM) may experience a wide range of psychological dysfunctions such as depression and anxiety.^{43,44} In the initial stages, this group may face issues in accepting a long-term diagnosis known to have a variety of complications. Diabetics often must make significant lifestyle changes such as taking regular medication and following a proper diet to maintain glycaemic control. They may have more difficulty doing so without support from loved ones and healthcare providers⁴⁵. Research shows that the most common psychological disorders associated with DM include diabetes-related distress (DRD) and depressive disorders.^{46,47}

Diabetes-related distress (DRD) is associated with emotional worries, burdens and stresses involving the demands of the chronic disease that is diabetes. It is an emotional state, that is distinctly variable from depression and is shown to be linked to the enormous burden of self-management of their diabetes.⁴⁸ Significant diabetes distress may affect approximately 18% of the adult population with diabetes with an 18-month incidence of 17%. Many studies have shown that DRD is largely undetected and can also escalate the severity of possible co-morbid depression.⁴⁹ Many diabetic patients leave their concerns regarding their condition unvoiced and as a result this may lead to poor self-management and health outcomes.⁵⁰ There are a few tools of assessment for DRD with the most recent one being the Diabetes Distress Scale. It is a 17-item questionnaire that looks at four distress-related domains: emotional burden, physician-related distress, regimen-related distress and diabetes-related interpersonal distress.⁴⁸

It is established that a common risk factor of FSD in women with diabetes is the existence of psychosocial issues such as depres-

sion.^{17,23} There is a possibility of a link between DRD and FSD however, there is currently no literature found that supports said link.

Gaps in literature

More studies need to be done to truly assess the prevalence of FSD in the Malaysian population. There are a few gaps in the literature that was noted. Firstly, the Malaysian population is made up of 60% Malays, 23% Chinese, 7% Indians and 10% others. However, studies regarding FSD among the different ethnicities including Chinese, Indians have not been carried out. Not only that, FSD among the population of diabetic women who are unmarried and sexually active is a largely unexplored one due to cultural taboos. As mentioned in the preliminary study, many women did not agree to being included in the study due to disapproval from their partner regarding the open discussion about sexual issues in a clinical setting. Hence, the prevalence of FSD among Malaysian women cannot be accurately measured in the population. Additionally, relevant social factors affecting FSD in these women such as education level, income, spouse health, religiosity and westernisation have not been considered in the current literature available.

Research questions

- I. Do Asian women who are pre-menopausal and diabetic have a greater rate of female sexual dysfunction (FSD) compared to non-Asian women?
- II. What are the possible factors involved in female sexual dysfunction?
- III. Is there a link between diabetes-related distress and sexual dysfunction? Can it be accessed via the Diabetes Distress Scale?

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Conflicts of Interest

Authors declare that there is no conflict of interest.

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