Taiwanese Journal of Obstetrics & Gynecology 57 (2018) 791–795

Contents lists available at ScienceDirect

Taiwanese Journal of Obstetrics & Gynecology

journal homepage: www.tjog-online.com

Original Article

Using the health belief model to predict those seeking treatment for Hypoactive Sexual Desire Disorder among premenopausal women

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ARTICLE INFO

Article history:
Accepted 10 January 2018

Keywords:
Hypoactive sexual desire disorder
Treatment intent
Premenopausal women

ABSTRACT

Objective: Hypoactive Sexual Desire Disorder (HSDD) was the most common subtype of female sexual dysfunction; however, little was known about why Chinese women with HSDD were willing to seek medical help. This study aimed to identify predictive factors of seeking treatment for HSDD.
Materials and methods: 260 outpatient premenopausal women who met the DSM-IV-TR criteria for HSDD for at least 6 months were recruited. All cases were divided into groups of willing to be treated and unwilling to be treated. The main outcome measures in this study were the Sexual Desire Relationship Distress Scale (SDRDS) score, physical and psychosexual characteristics, and Health Belief Model (HBM) variables.
Results: Women with willingness to be treated were significantly associated with fewer experiences of sexual assault ($P = 0.033$), longer relationship with a partner ($P = 0.039$), greater agreement about the severity of mental health injury as a result of HSDD ($P = 0.008$), more cues to action of sexual treatment ($P < 0.05$), higher self-efficacy ($P < 0.05$), and lesser treatment barriers including embarrassment about discussing desire problems with a physician ($P = 0.026$) and partner disagreement ($P = 0.005$). A relationship of more than 36 months (OR = 7.92), cues to action (OR = 1.70), and self-efficacy (OR = 1.76) could significantly predict willingness to be treated.
Conclusions: HBM was useful in predicting treatment intent in premenopausal women with HSDD. These findings suggest ways to increase the rate of those seeking treatment in the future.

Introduction

Hypoactive sexual desire disorder (HSDD) was the most common female sexual dysfunction. It was defined by DSM-IV-TR as a persistent or recurrent deficiency or absence of sexual fantasies and desire for sexual activity that causes marked distress or interpersonal difficulty. It cannot be better accounted for by another nonsexual axis I mental disorder or result solely from the direct physiological effects of a substance or medical condition [1]. Even though the prevalence of low sexual desire was high, only a small proportion of women ever sought medical help. According to the Global Study of Sexual Attitudes and Behaviors (GSSAB), women aged 40–80 in Taiwan were the 3rd most frequent demographic lacking an interest in sex in Asia (35%), but only 18% of those who reported frequent sexual problems sough health care. The most common reasons for the low rate of seeking help were lack of perception of the sexual problems, thinking that sexual problems were not a medical issue, embarrassment, and poor access to medical care [2].

Furthermore, HSDD remained a clinically underappreciated and relatively neglected area of research. Little was known about why women with HSDD in East Asia including Taiwan were not willing to seek medical help. The Health Belief Model (HBM) was developed in the 1950s by researchers Hochbaum, Rosenstock, and Kegels, which was inspired by a study of why people sought X-ray examinations for tuberculosis [3]. It was commonly used to predict compliance of medical treatment or response to health behavior. The model included six domains: a) Perceived susceptibility: an individual's assessment of their risk of getting the condition. b) Perceived severity: an individual's assessment of the seriousness of the condition, and its potential consequences. c) Perceived benefits: an individual's assessment of the positive consequences of adopting the behavior or treatment. d) Perceived barriers: an individual's assessment of the influences that discourage adoption of the

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https://doi.org/10.1016/j.tjog.2018.10.003

behavior or treatment. e) Cues to action: the individual was spurred to adopt the behavior or treatment by some additional element. f) Self-efficacy: conviction that one can successfully execute the behavior or treatment [4]. The aim of this study was to identify the factors associated with treatment-seeking behavior and to predict willingness to be treated in premenopausal women with HSDD.

Materials and methods

The study design was a cross-sectional, hospital-based survey from Oct 2013 to Mar 2014. A total of 366 outpatient premenopausal women aged 20–50 were recruited from the obstetric/gynecologic department of some hospitals in southern Taiwan. They initially presented for the purpose of non-sexual gynecologic problems. Participants had to meet the criteria for low sexual desire and a monogamous relationship for at least six months. The exclusion criteria were: bilateral oophorectomy, subtotal or total hysterectomy, substance or alcohol abuse, pregnancy or breastfeeding in the previous 6 months, and frequent smoking. The protocols and procedures employed were reviewed and approved by the ethics committee.

After informed consent was obtained, participants completed a self-administered structured questionnaire in a private room alone. If any question needed, a well-training assistance was available. The main outcome measures in this study were the Sexual Desire Relationship Distress Scale (SDRDS) score, physical and psychosexual characteristics, and health belief model variables. The SDRDS was developed to assess personal and relationship distress associated with HSDD in women who had been in a monogamous heterosexual relationship for at least 6 months [5]. It consisted of 17 items addressing both personal distress (items 1 to 10) and distress related to the partner relationship (items 11 to 17). Scores ranged from 0 to 68 with higher scores indicating higher levels of distress. The diagnosis of HSDD was determined if the score was larger than zero, which implied participants felt distress for low sexual desire, and could not be accounted for by direct physiological effects of any medication or non-sexual medical disease, which was judged by one gynecologic physician of sexuality background. All participants were awarded a gift valued 50 New Taiwan Dollars. 260 of 366 women (71.0%) were eligible (Excluded cases contained medication or non-sexual medical disease possibly associated with HSDD (n = 56), low desire without distress (n = 45), and more than 50% of questionnaire not completed (n = 5)).

The study showed satisfactory internal consistency with appropriate Cronbach's alpha values for five of six HBM domains (susceptibility to HSDD not counted due to one item; severity of HSDD, 0.901; benefits of treatment, 0.945; barriers to treatment, 0.815; cues to action, 0.900; and self-efficacy, 0.842). We used PASW Statistics 18.0 (SPSS Inc., WC, Hong Kong) for statistical analysis. Chi-square tests and independent *t* tests were used to compare those groups willing and unwilling to be treated. Multivariate logistic regression models were then used to determine the important predictive factors for willingness to be treated. A two-tailed $p \leq 0.05$ was considered statistically significant.

Results

Overall, 260 of the 366 women (71.0%) with HSDD were enrolled in the study. The average age was 37.6 years (SD = 6.87). 151 of 260 (59.9%) were willing and 101 (40.1%) unwilling to receive treatment. The average SDRDS score was 18.88 (SD = 12.12). There were no significant differences in socio-demographic variables between the groups who were willing and unwilling to be treated (Table 1). Women who were willing to be treated were significantly less likely to report experiences of sexual assault ($P = 0.033$) and more likely to have had a relationship with partner for at least 36 months than were those who were unwilling to be treated ($P = 0.039$) (Table 2).

With regard to health belief model variables (Table 3), women who were willing to be treated thought that HSDD would severely influence mental health more than those who were unwilling to be treated. They were also significantly less likely to feel embarrassed about discussing libido problems with a physician ($P = 0.026$), or to think that partner disagreement would prevent an individual from seeking medical help ($P = 0.005$). Support from a partner or family members ($P = 0.000$ and $P = 0.005$), television or internet promotion ($P = 0.012$), and a telephone reminder from the hospital ($P = 0.002$) were more likely to encourage premenopausal women to receive HSDD treatment. If women had ever heard the treatment experiences of family or friends, or had ever had a history of HSDD, then they were more likely to consider HSDD treatment ($P = 0.000$ and $P = 0.017$, respectively). Women who were willing to be treated had significantly higher self-efficacy including searching for information about HSDD ($P = 0.048$), visiting a hospital despite partner's disagreement ($P = 0.000$), and completing individual or couple treatment (both $P = 0.000$). There were no significant differences in self-perceived susceptibility to HSDD or benefit of sexual treatment between the groups.

Table 4 showed that HSDD women who lived in townships were 2.82 times more likely to be willing to be treated than those who lived in villages (95% CI, 1.05–7.54, $P = 0.039$). Women with a partnered relationship for more than 36 months were 7.92 times more likely to be willing to be treated than those who had a relationship for 12–18 months (95% CI, 1.40–44.85, $P = 0.019$). Women who had cues to action of sexual treatment and self-efficacy were 1.70 times and 1.76 times more likely to be willing to be treated than those who did not (95% CI, 1.03–2.82, $P = 0.040$, and 95% CI, 1.15–2.71, $P = 0.010$).

Discussion

Many previous studies had overlooked an important aspect of DSM-IV-TR defined HSDD which could not be better accounted for by another nonsexual disorder or medications, because they used self-reported decreased sexual desire and distress rather than a clinician's assessment. Taiwanese women with HSDD had a much lower frequency of distress than did American women, compared with 43.1 ± 0.9 as determined by Revicki et al. [4]. It might be accounted for by conservative sexual beliefs and culture. Women who were willing to be treated were less likely to report experiences of sexual assault. Several studies had shown a variable long-term influence on a female adult's low desire after childhood abuse or neglect [6–10]. Although no reports had addressed the experience of sexual assault and help-seeking behavior, post-traumatic stress disorder might lower the treatment intent for HSDD. Women with a relationship of more than 36 months could effectively be predicted to be willing to be treated. A long term relationship with low marital satisfaction might motivate women who want more closeness or pleasure with a partner to seek medical help. Marital status or marital dissatisfaction was significant predictors for seeking treatment [11,12].

The present study showed that women with self-perceived good health status and combined other sexual dysfunctions were relatively more likely to be willing to be treated, but not significantly so. This result was compatible with that of Shifren et al. who found that women who perceived their health as poor might have other medical conditions that were more pressing than their sexual problems, so that they would rather discuss them during a medical encounter [13]. Although no literature was found to demonstrate the association of combined sexual dysfunctions and treatment intent, more than two sexual disorders may heighten distress and

Table 1
Socio-demography characteristics of 260 premenopausal women with or without treatment intention.

	Willing to be treated	Unwilling to be treated	*t*	*p*
Age (years)	37.13 (7.02)	38.25 (6.62)	−1.251	0.212
Race/Ethnicity				0.778
Taiwanese	93.8%	92.9%		
Native Taiwanese or others	6.2%	7.1%		
Education				0.275
High school or less	22.7%	25.0%		
Junior college	28.8%	37.0%		
College or more	48.5%	38.0%		
Residence				0.205
Villages	26.1%	29.5%		
Townships	26.1%	14.7%		
Counties	26.8%	33.7%		
Cities	21.1%	22.1%		
Religion				0.981
Buddhist or Taoism	60.6%	60.0%		
Christian or other	13.1%	12.6%		
Not specified	26.3%	27.4%		
Marital status				0.879
Unmarried	23.3%	22.4%		
Married or cohabiting	76.7%	77.6%		

Data was presented as (mean, SD) or %.

be more likely to decrease sexual satisfaction, which would motivate women to seek medical help.

Women who were willing to be treated were more likely to think that HSDD would have a severe influence on mental health. If a sexual problem were not perceived serious or bothersome, then it might not motivate treatment-seeking behavior [14]. There seemed to be a connection between “sex as not serious/about pleasure” and “sexual problems different from medical problems”, which formed key impediments to seeking help for sexual concerns [15]. Women who were willing to be treated were less likely to feel embarrassed about discussing desire problems with a physician. This was compatible with other studies [13,16–18]. The underlying causes could be related to physician characteristics, the length and quality of the relationship between patient and physician, and individual comfort with discussing sexual issues [13].

Table 2
Baseline characteristics of 260 premenopausal women with or without treatment intention.

	Willing to be treated	Unwilling to be treated	*t*	*p*
SDRDS scale scores	18.91 (12.59)	18.88 (10.99)	0.021	0.983
Physic variables				
Number of pregnancy	1.83 (1.27)	1.84 (1.37)	−0.050	0.960
Number of abortion	0.47 (0.77)	0.49 (0.76)	−0.223	0.824
Contraception	44.4%	48.0%		0.572
Psychosexual variables				
First sex experience[a]	2.13 (0.92)	2.05 (0.85)	0.717	0.474
Sexually assaulted				0.033*
Yes	0.0%	3.0%		
No	100.0%	97.0%		
Combined other sexual dysfunctions				0.073
Yes	15.1%	7.0%		
No	84.9%	93.0%		
Self- perceived health status[a]	2.57 (0.71)	2.40 (0.70)	1.834	0.068
Relationship with main caregiver in child[a]	3.13 (0.78)	3.00 (0.78)	1.329	0.185
Sex frequency in the past 4 weeks				0.799
Nil	11.5%	10.3%		
1–3/month	37.2%	43.3%		
1/week	31.1%	26.8%		
2 or more/week	20.3%	19.6%		
Sexual satisfaction in the past 4 weeks[a]	2.44 (0.77)	2.36 (0.74)	0.797	0.427
Sexual attitude[b]	3.09 (0.74)	2.97 (0.63)	1.376	0.170
No sexual attractive of body image[b]	1.48 (0.92)	1.53 (0.92)	−0.395	0.694
Stress or fatigue in the past 4 weeks[b]	2.50 (0.94)	2.61 (0.82)	−0.987	0.325
Relationship length with partner				0.039*
12–18 months	4.1%	12.6%		
18–36 months	6.8%	8.4%		
More than 36 months	89.0%	78.9%		
Partner relationship in the past 6 months[a]	2.73 (0.80)	2.65 (0.77)	0.727	0.468
Sexual dysfunction of partner in the past 6 months	8.5%	7.4%		0.781
Communication with partner on sexual topic [a]	2.50 (0.90)	2.41 (0.80)	0.769	0.442

Data was presented as (mean, SD) or %.
Sexual attitude indicated that sex was certainly important for a successful marriage or relationship.
* $P < 0.05$.
[a] 0 = very bad, 4 = very good.
[b] 0 = very much opposed, 4 = very much in favor.

Table 3
Health belief model characteristics of 260 premenopausal women with or without treatment intention.

	Willing to be treated	Unwilling to be treated	*t*	*P*
Susceptibility to HSDD[a]	1.61 (0.84)	1.57 (0.73)	0.370	0.712
Severity of HSDD[a]				
Physical health injury	2.24 (1.04)	2.01 (1.02)	1.732	0.085
Mental health injury	2.52 (0.99)	2.18 (0.97)	2.654	0.008**
Sexual satisfaction injury	2.70 (0.93)	2.52 (0.87)	1.580	0.115
Partner relationship injury	2.67 (0.97)	2.49 (0.86)	1.513	0.132
Benefits of treatment[a]				
Physical health improvement	2.37 (1.12)	2.15 (0.90)	1.704	0.090
Mental health improvement	2.50 (1.14)	2.36 (0.84)	1.146	0.253
Sexual satisfaction improvement	2.58 (1.12)	2.41 (0.93)	1.236	0.218
Partner Relationship improvement	2.67 (1.14)	2.53 (0.90)	1.041	0.299
Barrier of treatment[a]				
Inconvenient of medication treatment	2.21 (0.91)	2.39 (0.78)	−1.657	0.099
Inconvenient of psychological counseling	2.29 (0.92)	2.50 (0.83)	−1.847	0.066
Embarrassment about discussing desire problems with a physician	2.32 (0.99)	2.59 (0.88)	−2.244	0.026*
Partner disagreement	1.85 (1.06)	2.19 (0.85)	−2.839	0.005**
Minor side effects of medication	2.77 (0.90)	2.92 (0.82)	−1.315	0.190
Major side effects of medication	2.83 (0.94)	2.92 (0.75)	−0.883	0.378
Cues to action[a]				
Partner	2.97 (0.56)	2.62 (0.81)	3.713	0.000***
Family members	2.84 (0.68)	2.56 (0.81)	2.861	0.005**
Friends	2.65 (0.74)	2.47 (0.89)	1.637	0.103
Television or internet	2.52 (0.79)	2.22 (0.98)	2.531	0.012*
Telephone reminder from hospital	2.45 (0.81)	2.09 (0.99)	3.130	0.002**
Treatment experience of family or friends	2.79 (0.72)	2.37 (0.95)	3.735	0.000***
Past HSDD history	2.53 (0.85)	2.25 (0.96)	2.398	0.017*
Self efficacy[b]				
Getting information about HSDD	2.09 (0.91)	1.86 (0.91)	1.989	0.048*
Visiting hospital despite partner disagree	2.08 (0.90)	1.57 (1.01)	4.180	0.000***
Completing individual treatment	2.37 (0.85)	1.75 (0.89)	5.578	0.000***
Completing couple treatment	2.14 (0.95)	1.64 (0.96)	4.065	0.000***

Data was presented as (mean, SD).
*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.
[a] 0 = very much opposed, 4 = very much in favor.
[b] 0 = very much unconfident, 4 = very much confident.

Cues to action of sexual treatment obviously influenced women's willingness to be treated and were the second most important predictor. Support from important people (partner than family members than friends), television or internet promotion, or a telephone reminder from the hospital were more likely to encourage women to receive HSDD treatment. Nicolosi et al. found that the frequency of Taiwanese women's support from a partner, family members and society for help-seeking behavior of sexual problems was the highest in Asian countries (42%) [2]. Shifren et al. indicated that a higher proportion (71.4%) of premenopausal and postmenopausal women who sought help had ever discussed sexual problems with a spouse or partner [13]. The nature of the

Table 4
Predictors of treatment intention of 260 premenopausal women.

	Odds ratio	95% Confidence interval	*P*
Demographic variables			
Residence			0.120
Villages	Ref	–	
Townships	2.82	1.05, 7.54	0.039*
Counties	0.90	0.36, 2.21	0.809
Cities	1.07	0.43, 2.64	0.888
Psychosexual variables			
Combined other sexual dysfunction			
Yes	3.84	0.96, 15.41	0.058
No	Ref		
Relationship length with partner			0.065
12–18 months	Ref		
18–36 months	7.16	0.85, 60.20	0.070
More than 36 months	7.92	1.40, 44.85	0.019*
Health belief variables			
Susceptibility to HSDD	1.26	0.87, 1.82	0.227
Severity of HSDD	1.09	0.75, 1.59	0.637
Benefits of treatment	1.11	0.79, 1.56	0.554
Barrier to treatment	0.62	0.39, 1.00	0.050
Cue to action	1.70	1.03, 2.82	0.040*
Self-efficacy	1.76	1.15, 2.71	0.010**

Odds ratios from multiple logistic regression.
*$P < 0.05$, **$P < 0.01$.

relationship with a partner could influence help seeking either through an elevation of personal distress or in other ways e.g. encouragement in seeking information and treatment by the partner. In the GSSAB study, the prevalence of looking for information anonymously (in books/magazines or via telephone helpline/internet) by women who reported frequent sexual problems was 9.2% in East Asia [19]. In addition, if women had ever heard the treatment experiences of family or friends, or had ever had a history of HSDD, they were significantly more likely to consider HSDD treatment. This result was compatible with that in other studies [13,20].

Women who were willing to be treated had significantly higher self-efficacy, and this was the most important predictor. In another study, the majority (78.2%) of women who sought formal healthcare for any sexual problem reported that they rather than the healthcare provider had initiated the first discussion [13]; this was especially true for younger women (<65 years of age).

Clinicians presented with premenopausal women with problems of sexual desire should carefully assess their patients' self-perceived health beliefs, past experiences of sexual assault, combined other sexual problems, and the length of the relationship with a partner in order to develop a comprehensive management plan.

The study had four limitations. First, all participants were recruited from a hospital, and not from the general population, where the treatment intent rate and predictive factors might be different. Second, women with multiple partners or without a partner were not included. Third, we did not measure serum hormone levels. Finally, responsive desire or subtypes of HSDD (general or situational, and primary or secondary) were not explored.

Conflict of interest

The above authors have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Acknowledgments

The research was funded with no. 103-2629-H-366-001 of the Ministry of Science and Technology.

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