



ORIGINALES

The Relationship of Cognitive Distortions and Female Sexual Dysfunction

La Relación de las Distorsiones Cognitivas y la Disfunción Sexual Femenina

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ABSTRACT:

Objective: Establish the influence of cognitive distortions on female sexual dysfunction in nurses, as well as to identify the predominant relationship between the types of cognitive dysfunction with female sexual dysfunction.

Methods: The design was descriptive, correlational and cross-sectional, in 184 nurses. Selected by multistage clusters. Two instruments with acceptable reliability were used: the Female Sexual Function Index and the Automatic Thoughts Instrument. The analysis was based on descriptive statistics, the Kolmogorov Smirnov test with Lilliefors correction, Spearman's coefficient of determination and Multiple Linear Regression models.

Results: The results showed positive correlations, for desire with interpretation of thought ($p < .05$) and desire with guilt ($p < .05$), on the other hand, arousal was correlated with polarized thought ($p < .05$). In the multiple linear regression model, the significant predictors of female sexual dysfunctions were filtering ($\beta = -.346$, $p < .05$), polarized thinking ($\beta = .341$, $p < .05$), and change fallacy ($\beta = -.307$, $p < .05$).

Conclusion: The findings are relevant to the discipline of nursing, since the approach to the variables will allow promoting future interventions that will help to understand the sexuality of this population group.

Keywords: Female Sexual Dysfunction; Female Sexual Function; Health Personnel; Irrational Beliefs; Sexuality; Dysfunctional Sexual Beliefs.

RESUMEN:

Objetivo: Conocer la influencia de las distorsiones cognitivas en la disfunción sexual en las enfermeras.

Métodos: El diseño fue descriptivo, correlacional y transversal en 184 enfermeras seleccionadas por muestreo por conglomerados polietápico. Se utilizaron dos instrumentos con confiabilidad aceptable, el Índice de Función sexual Femenino y el Instrumento de Pensamientos Automáticos. El análisis se basó en estadística descriptiva, el estadístico de Kolmogorov Smirnov con corrección de Lilliefors, coeficiente de correlación de Spearman y modelos de Regresión Lineal Múltiple.

Resultados: Los resultados arrojaron correlaciones positivas, para deseo con interpretación del pensamiento ($p < .05$) y deseo con culpabilidad ($p < .05$), la excitación se correlacionó con pensamiento polarizado ($p < .05$). En el modelo de regresión lineal múltiple, los factores predictivos significativos de las disfunciones sexuales femeninas fueron: filtraje ($\beta = -.346$, $p < .05$), pensamiento polarizado ($\beta = .341$, $p < .05$), y falacia de cambio ($\beta = -.307$, $p < .05$).

Conclusión: Se encontró una relación entre las distorsiones cognitivas y las disfunciones sexuales. Esto indica que las enfermeras al presentar distorsiones cognitivas, su ciclo de respuesta sexual puede verse afectado. Así mismo, esto puede limitar la capacidad de las enfermeras para prevenir, promover y abordar temas y problemas relacionados con la sexualidad femenina.

Palabras clave: Disfunción Sexual Femenina; Función Sexual Femenina; Personal de Salud; Creencias Irracionales; Sexualidad; Creencias Sexuales Disfuncionales.

INTRODUCTION

Female Sexual Dysfunction (FSD) is characterized by failure or difficulties during sexual intercourse due to psychological, biological, cultural and social factors that interfere with normal sexual function⁽¹⁾. The American College of Obstetricians and Gynecologists' Committee on Practice Bulletin: Gynecology⁽²⁾ mentions that FSD causes sexual concerns and distress, since it alters the processes that define the sexual response cycle, as well as its dimensions including desire, arousal, orgasm, and resolution during intercourse. Currently, it is estimated that approximately 22% to 43% of women suffer from FSD⁽³⁾. Meanwhile, a study by the Latin American Climacteric Research Network (REDLINC), covering 11 countries, examined the characteristics of sexuality in middle-aged women and found that 56% of them had sexual dysfunction (SD), which was assessed by the Female Sexual Function Index (FSFI)⁽⁴⁾.

FSD due to its multifactorial nature affects the mechanisms that characterize the sexual response cycle, which are dynamically intertwined and shape the sexual response^(5, 6). In this sense, Basson's sexual response cycle model exposes the interaction between the body and the mind in women's sexual response⁽⁷⁾. It provides an understanding of the psychophysiology of female sexuality by focusing on its experiences rather than simply biological aspects⁽⁸⁾.

By contrast, cognitive dysfunctions are unrealistic, rigid or extreme interpretations of information, which arise as a negative bias that triggers an emotional response and behavior that attributes meaning to environmental stimuli, i.e., they arise due to errors in a person's reasoning and contribute to maintaining unfavorable beliefs⁽⁹⁾. A study in which 176 nursing professionals were evaluated showed that 5% had severe levels of cognitive dysfunction and 33% had moderate levels⁽¹⁰⁾.

According to Ruiz and Lujan the cognitive dysfunctions are: mental filter, all or nothing, overgeneralization, thought reading, catastrophic vision, personalization, control

fallacy, justice fallacy, emotional reasoning, change fallacy, labeling, blaming, the “should”, reason fallacy and reward fallacy⁽¹¹⁾.

As for nurses, they play an important role in service delivery and in person, family, and community-centered care at all stages of life⁽¹²⁾. However, they require great mental and physical effort, due to the different risk factors to which they are exposed, such as the work environment, the demands of both patients and managers, work overload and low salaries⁽¹³⁾. These factors can have a negative impact on their quality of life both personally and professionally⁽¹⁴⁾. Although much research has focused on the mental health of nurses, little attention has been paid to sexual problems such as FSD⁽¹⁵⁾.

Aspects related to sexual health should be an integral part of patient care, however, in nursing sexuality education and care are insufficient due to limited curricula, lack of standards in education and practice, lack of clinical experience, attitudes and beliefs, so nurses must have skills and knowledge about FSD for their self-care and that of the other women to whom they provide health care^(16,17).

Evidence indicates that some nurses believe that asking patients about sexuality invades their privacy and avoid broaching the subject, as there are beliefs that become barriers to discussing sexual issues with patients⁽¹⁴⁾. In this regard, it can be seen that female nurses have beliefs that can influence the process of the sexual response cycle, leading to sexual dysfunctions^(18,19).

To understand how cognitive dysfunctions and FSD are related, it is essential to recognize that beliefs are ideas held to be true. These beliefs are formed and learned over time through lifestyle, upbringing, sociocultural factors and lived experiences⁽²⁰⁾. Beliefs are able to influence a person's cognitive processing and act as the basis for automatic thoughts⁽²¹⁾.

When these automatic thoughts are negative, they may originate or reinforce cognitive dysfunctions, since the way we interpret information is deeply linked to our beliefs. Therefore, the interaction between thinking and interpretation of information is critical to understand cognitive dysfunctions. Since cognitive dysfunctions are psychological factors that can disrupt the sexual response cycle by blocking the nerve signals that enable sexual functioning and somatic responses⁽²²⁾.

As for nurses, despite having knowledge about sexuality, they are not exempt from showing misconceptions that form automatic thoughts, and these in turn generate cognitive dysfunctions that are enhanced and reinforced from a psychological construct of oneself, the environment and the meaning attributed to individuals and objects, which are expressed through emotions and thoughts⁽²³⁾. This situation can generate psychosocial stress and limit the ability of nurses to prevent, promote and care for sexuality in other women. Although they have knowledge, they are not exempt from presenting biases towards sexuality that derive from cognitive dysfunctions that are enhanced and reinforced by social and cultural factors, since these beliefs have been reinforced by empirical issues of a personal nature rather than formal education⁽²⁴⁾.

Additionally, nurses may not suffer from sexual dysfunction, but still express a negative attitude toward sex. This behavior may be related to cognitive dysfunctions

that affect their willingness to address sexual problems⁽²⁵⁾. In this regard, it is important for the nursing profession to identify the cognitive dysfunctions that could affect their sexuality and how to educate other women, thus promoting healthy behaviors based on assertive strategies. In addition, it is essential to recognize the importance of addressing FOD, as this has a substantial impact on nurses' lives⁽¹⁵⁾. Thus also, the NANDA (North American Nursing Diagnosis Association) literature addresses the elements of the FSD⁽²⁶⁾.

A recent study has highlighted the lack of research on this topic indicating that cognitive dysfunctions negatively affect the mental health of nursing professionals. This emphasizes the importance of continuing to address cognitive dysfunctions to raise awareness of the potential adverse health effects they can generate⁽¹⁰⁾. Investigating cognitive dysfunctions in nurses is essential to prevent the occurrence of mental health problems that may affect their well-being. In addition, no specific research has been conducted in nurses on the relationship of sexual dysfunctions and cognitive dysfunctions which highlights the need for this study.

Therefore, the purpose of the study was: to know the influence of cognitive dysfunctions on sexual dysfunction in nurses. The findings of the study could encourage the development of cognitive-behavioral interventions that help nurses to recognize possible associations by which cognitive dysfunctions occur in the context of sexuality and, thus, generate conditions in which nurses promote self-care behaviors in sexuality.

METHOD

This is a descriptive, correlational, cross-sectional study^(27, 28). The sample size was calculated in the StatCalc package of Epi Info, with an error of .05, power of 90% and a correlation coefficient of .05. The population consisted of 966 nurses from various public health institutions in the northern zone of the state of Sinaloa and a final sample of 184. The sampling was probabilistic, by multistage clustering proportional to the number of nurses per institution^(29, 30).

Inclusion and exclusion criteria

Nurses who, regardless of their ethnicity, religion, and marital status, were over 18 years of age and practiced in a public health institution were chosen. These nurses who indicated that they were not sexually active and who presented health conditions such as: various types of cancer, multiple sclerosis and polycystic ovarian syndrome were excluded, since Woertman and Van den Brink⁽³¹⁾ indicate that these conditions affect sexual functioning in women.

Instruments

Regarding the application of the instruments, the nurses answered the questionnaires in a private space free of distractions. In addition, informed consent was provided and total confidentiality and anonymity were emphasized. It was made clear that the questionnaire would take between 20 and 30 minutes. At the end, they were thanked for their participation.

Sociodemographic data card that included personal factors such as sexual orientation, marital status, age, education level, and questions related to the nurses' sexuality, such as: Do you currently have sexual relations?, Have you ever had any problem related to your sexuality?, If you had any problem with your sexuality, who would you turn to solve it?

Inventory of Automatic Thoughts-Cognitive dysfunctions (IPA). To measure the cognitive dysfunction variable, 45 items designed to measure the frequency of negative automatic thoughts that are rated on a scale of 0 to 3: 0. Never, 1. Almost never, 2. The instrument presents a Cronbach's alpha of 0.94 and reliability in each of the subscales ranging from 0.66 to 0.82.

The items were totaled according to cognitive dysfunctions; a score of two or more for each automatic thought reflects that the issue is affecting the nurse at present. The summation of the items was carried out according to the cognitive dysfunctions. A score of 6 or more, in the total of each distortion, may indicate a tendency to interpret life events in a certain way⁽³²⁾.

Female Sexual Function Index (FSFI). In order to measure the FSD variable there is an instrument of 19 items, with 5 or 6 options, which are assigned a score ranging from 0 to 5; it is grouped into six domains: drive, arousal, lubrication, orgasm, satisfaction and pain. The score for each domain is multiplied by a factor and the final result is the arithmetic summation of the domains. The higher the score, the better the sexuality, while the lower the score, the higher the sexual dysfunction. The instrument has a Cronbach's alpha of 0.82⁽³³⁾. Both studies have been validated in different countries, including Latin American populations^(32, 33).

Data collection

Prior to data collection, authorization was requested from the ethics committee of the Mochis School of Nursing. Code CEI-010 was assigned to this approval, as well as from the authorities of the public health centers. Subsequently, a meeting was organized with the nurses to explain the purpose of the study and resolve doubts. The nurses were informed about the research and were asked to collaborate, offering them the option of responding with pencil and paper or by means of a QR code that led to the questionnaires in Microsoft Forms, so that the nurses could have greater accessibility and comfort when answering. The study was conducted during the months of August to December 2022.

Statistical analysis

The statistical package for SPSS V. 26 was used. The continuous and categorical variables were determined through measures of central tendency, frequencies and percentages. The Kolmogorov-Smirnov-Lilliefors test was performed for the normal distribution of the data, where a normal distribution was not obtained. Therefore, nonparametric statistics were used to meet the objectives of the study.

To answer the general objective, the multiple linear regression test was performed. To answer the second objective, the Spearman correlation test was used, since the variables did not have a normal distribution.

RESULTS

The mean age was 33.25 ($SD = \pm 8.5$). Of the total number of nurses, 3.8% had a master's degree, 9.8% had a technical degree, 11.44% were specialists, and 75% had a bachelor's degree. According to marital status, 51.6% of the nurses were single, 35.9% were married and 8.7% were in common marriage. Of the total number of nurses, 95.7% have sexual relations. Table 1 shows the phases of the female sexual response cycle, showing a higher mean in lubrication with 81.66 ($SD = 26.82$) and a lower mean in sexual drive with 64.73 ($SD = 21.47$).

Table 1: Descriptive statistics of female sexual dysfunction.

<i>FSD</i>	<i>n</i>	<i>M</i>	<i>DE</i>
Sexual drive	184	64.73	21.47
Lubrication	184	81.66	26.82
Sexual arousal	184	75.49	26.76
Orgasm	184	71.05	26.81
Satisfaction	184	75.25	30.55
Pain	184	77.10	28.28

Note: $n = 184$, $M =$ Mean, $SD =$ Standard deviation, $FSD =$ Female sexual dysfunction.

Regarding cognitive dysfunctions (CD) in nurses in Table 2, it is shown that the reward fallacy was presented with a higher Mean of 39.79 ($SD = 24.65$) and a Mean in lower frequency of 12.62 ($SD = 16.08$) for the guilt subscale.

Table 2: Descriptive statistics of cognitive dysfunctions.

<i>CD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Filtering	184	21.92	20.06
Polarized thinking	184	13.47	17.47
Overgeneralization	184	13.10	16.16
Thought interpretation	184	17.45	18.16
Catastrophic view	184	23.25	21.40
Customization	184	13.71	16.11
Control fallacy	184	12.86	117.66
Justice fallacy	184	19.81	21.65
Emotional reasoning	184	12.68	16.51
Change fallacy	184	20.17	18.79
Global labels	184	17.33	17.17
Guilt	184	12.62	16.08
The "should"	184	19.26	18.94
Reason fallacy	184	20.17	17.30
Reward fallacy	184	39.79	24.65

Note: $n = 184$, $M =$ Mean, $SD =$ Standard deviation, $CD =$ Cognitive dysfunctions.

To establish the influence of cognitive dysfunctions on sexual dysfunction, multiple linear regression tests were performed (Table 3). The model ($F [15,184] = 1.98$, $p = .019$) explained 15% of the variance. It can be observed that filtering has a negative effect on sexual dysfunction ($-.346$, $t = -2.71$, $p < .007$), and polarized thinking has a positive effect on sexual dysfunction ($.341$, $t = 2.04$, $p < .042$). Finally, change fallacy has a negative effect on sexual dysfunction ($-.307$, $t = -2.28$, $p < .023$).

Table 3: Multiple linear regression model of sexual dysfunction subscales and cognitive dysfunctions.

CD	B	T	P
Filtering	-.346	-2.71	.007*
Polarized thinking	.346	2.04	.042*
Change fallacy	-.307	-2.28	.023*

Note: n = 184, *p < .05, CD= Cognitive dysfunctions.

To identify the relationship between the type of cognitive dysfunction and female sexual dysfunction, Spearman's test was performed (Table 4). Correlations were found in polarized thinking and arousal ($r_s = .150$; $p < .05$), guilt and sexual drive ($r_s = .173$; $p < .05$). Negative correlation in change fallacy and arousal ($r_s = -.209$; $p < .01$), lubrication with filtering ($r_s = -.155$; $p < .05$), lubrication with personalization ($r_s = -.248$; $p < .01$), and lubrication with guilt ($r_s = -.162$; $p < .05$). Orgasm with filtering ($r_s = -.194$; $p < .05$), catastrophic view ($r_s = -.168$; $p < .05$), control fallacy ($r_s = -.180$; $p < .05$), justice fallacy ($r_s = -.166$; $p < .05$), change fallacy ($r_s = -.262$; $p < .01$). Pain with filtering ($r_s = -.210$; $p < .01$), thought interpretation ($r_s = -.149$; $p < .05$), personalization ($r_s = -.243$; $p < .01$), and control fallacy ($r_s = -.178$; $p < .05$).

Table 4: Correlation of cognitive dysfunctions with sexual dysfunction.

CD	Drive	Arousal	Lubrication	Orgasm	Satisfaction	Pain
Filtering	.090	-.100	-.155*	-.194**	-.129	-.210**
Overgeneralization	.191**	.118	-.098	-.085	.048	-.075
Thought interpretation	.175*	.041	-.029	-.121	.012	-.149*
Catastrophic view	.103	.030	-.087	-.168*	.039	-.081
Customization	.119	-.105	-.248**	-.114	.004	-.243**
Control fallacy	-.015	-.054	-.130	-.180*	-.118	-.178*
Justice fallacy	-.029	-.013	-.106	-.166*	-.054	-.103
Change fallacy	.043	-.209**	-.231**	-.262**	-.075	-.136
Guilty	.173*	.008	-.162*	-.125	-.056	-.169*
The "should"	.080	.041	-.110	-.176*	-.030	-.136

Note: n = 184, *p < .05, **p < 0.01. CD= Cognitive dysfunction.

DISCUSSION

Overall, the results indicate that cognitive factors play a significant role in the sexual function of 184 nurses from various public health institutions, confirming the influence of cognitive dysfunctions on female sexual dysfunction. However, caution is critical when interpreting these results, as the impact of these variables has not been previously explored. This suggests that cognitive factors such as beliefs, emotions, automatic thoughts, interpretation of experiences, and thought patterns may influence the nurses' sexual response.

Based on the objective, to establish the influence of cognitive dysfunctions on sexual dysfunction in nurses, it was observed that the cognitive dysfunctions of filtering, polarized thinking and change fallacy had influence on FSD. This finding is similar to that found in a Nobre and Pinto⁽³⁴⁾ study, where automatic thoughts were found to be related to sexual response, interact simultaneously and are capable of leading to sexual dysfunction.

Regarding the type of cognitive dysfunction in relation to Female Sexual Dysfunction, a correlation was found between sexual desire which is the constant or repeated lack of sexual fantasies that lead to relationship problems⁽⁸⁾ and overgeneralization which consists of drawing conclusions from some lived experiences and applying them to other situations⁽³⁵⁾. This fact could be explained by the fact that sexual drive is experienced as a craving for sensations for their own sake⁽³⁶⁾.

Sexual health is a crucial component of wellness in nurses, therefore, it needs to be addressed comprehensively. In this regard, nurses should attend regular medical evaluations to rule out possible underlying causes such as hormonal imbalances, chronic diseases or side effects of medications that may contribute to low sexual drive, additionally, if no obvious medical cause is found, it is important to consider psychological factors, such as stress, anxiety, depression or experiences considered traumatic. It is also important to assess whether the reduction in sexual drive is specific to certain stimuli, contexts or partners⁽²⁾.

According to Nobre and Pinto⁽³⁷⁾, regarding sexual drive, a relationship was found with the cognitive dysfunction of thought interpretation which is predicting or anticipating negative outcomes of future actions, feelings or events and believing that what is thought is true. This finding is similar to what other studies report regarding sexual dysfunctional beliefs, cognitive schemas and automatic thoughts, as nurses anticipating negative outcomes may develop misconceptions about their sexual performance. This belief could affect their self-esteem, generating feelings of loneliness, thoughts of failure, lack of erotic thoughts, less pleasure, disappointment and sadness⁽³⁸⁾.

Moreover, sexual drive was related to guilt, a cognitive dysfunction, which consists of blaming oneself or others for what happened without any evidence of it ^(37,39). The cognitive dysfunction of guilt may contribute to low sexual drive by affecting self-perception, relationship with a partner, and sexual expectations, similar to a study conducted by Nobre and Pinto⁽³⁴⁾ that reported that women with low sexual drive had more guilt than women with low sexual drive.

Sexual arousal, which is the ability to achieve or maintain an appropriate lubrication response until the end of sexual activity⁽⁴⁰⁾, was related to polarized thinking, thus, consisting in assessing situations or things in an extreme way without having an intermediate view⁽⁴¹⁾. Polarized thinking in the context of sexual arousal can be detrimental, as it can lead to unrealistic expectations, unnecessary pressure, and difficulties in enjoying a satisfying and healthy sex life. This finding is similar to the study⁽³⁷⁾ which mentions that arousal is related to thoughts of failure and disengagement, which implies experiencing insecurity and disconnection during sexual intercourse.

Additionally, a relationship between arousal and the belief that sexual drive is considered a sin or something negative and forbidden was seen. It was also related to the lack of erotic thoughts during sexual intercourse. Finally, arousal was related to sexual conservatism, that is, traditional or conservative attitudes toward sex^(34,41). This could be because nurses with conservative beliefs tend to moderate and control their sexual behavior, resulting in repressed sexual arousal. Mainly in nurses who were raised in religious environments or in reserved cultural contexts where sexuality is seen as a taboo subject.

This study has several limitations, among the most important of which are the sensitivity that the nurses may have had to the variables studied and the resistance to answering the questionnaires. Therefore, further studies are recommended that consider specific strategies to mitigate this type of resistance and further explore the relationship between beliefs and cognitive dysfunctions in clinical practice.

CONCLUSIONS

The results of this research emphasize the influence of cognitive phenomena, especially those of thinking that underlie cognitive dysfunction, as they may affect the sexual response cycle, contributing to the development of female sexual dysfunctions. These findings are fundamental for the nursing discipline, since the approach to sexual dysfunctions and cognitive dysfunctions could allow the promotion of interventions aimed at training in cognitive-behavioral techniques and the development of educational workshops that help to better understand and identify sexuality. It is important that nurses recognize in themselves the aspects of female sexual dysfunctions in relation to cognitive dysfunctions and thus promote self-care, since it can be observed that many of them currently have very different concepts about how to exercise sexuality.

It is also suggested the integration of multidisciplinary health teams that address this phenomenon in a comprehensive manner, as well as techniques to address the beliefs and cognitive dysfunctions that may influence the practice of female nurses. Finally, the need for further research on the impact of cognitive beliefs and dysfunctions on nursing practice to improve sexual health care provided to women is highlighted.

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