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Factors affecting sexual dysfunction in hemifacial spasm

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ABSTRACT

Aims: Hemifacial spasm (HFS) is a movement disorder consisting of involuntary and synchronous contractions of facial nerve innervated muscles, usually involving one half of the face. Sexual health is an important aspect of mental health and has been frequently investigated in movement disorders such as Parkinson's disease. The aim of this study was to investigate the relationship between sexual dysfunction and factors such as age, depression, disease duration, and disease severity in patients with HFS.

Methods: This prospective, descriptive study included 50 patients with HFS. Data were collected using the beck depression inventory (BDI), the HFS severity scale, and the Arizona Sexual Experiences Rating Scale (ASLS) for sexual dysfunction.

Results: The mean age of the patients included in the study was 50.05±9.42 years. 58.2% were female and 41.8% were male. It was observed that sexual dysfunction was more common in female HFS patients and patients with low educational level. In addition, the frequency of sexual dysfunction increased with increasing age and depression level. Although there was a statistically significant relationship between the severity of HFS and sexual dysfunction, the duration of the disease had no significant effect on sexual dysfunction.

Conclusion: This study shows that sexual dysfunction is common in HFS patients and associated with gender and age. Sexual dysfunction has been shown to increase with depression and HFS severity.

Keywords: Hemifacial spasm, sexual dysfunction, depression

INTRODUCTION

Hemifacial spasm (HFS) is a movement disorder consisting of involuntary and synchronous contractions in facial nerve innervated muscles, usually involving one half of the face. Its prevalence is approximately 10 per 100.000 people.^{1,2} Spasms may be clonic or more rarely tonic. Involuntary contractions start mostly in the lower eyelid and can be seen around the eyes, cheeks and mouth in the later stages. These contractions are known to be triggered by voluntary contraction of facial muscles, external factors such as wind, or personal factors such as anxiety and phatic. Chronic HFS symptoms lead to loss of self-confidence, social isolation and even depression, which significantly impairs quality of life in approximately 90% of patients.³

There are several studies evaluating quality of life in patients with HFS.^{4,5} Patients may self-describe physical discomfort such as facial pain, discomfort, visual disturbances, photophobia and trismus due to HFS which affect quality of life. However, they usually hesitate to mention their problems in sexual functioning when they are not questioned. Sexual health is an important component that affects the quality of life of patients. Sexual dysfunctions consist of low sexual desire, sexual aversion disorder, arousal and orgasm disorder, vaginismus and painful sexual intercourse problems in women; and low sexual desire, sexual aversion disorder,

erectile dysfunction, premature ejaculation and other ejaculation disorders and painful sexual intercourse problems in men.^{4,5}

Sexual functioning is considered an important element of mental health.⁶ Studies have found that sexual dysfunction is increased in other movement disorders.⁷ The relationship between sexual dysfunction and HFS, on the other hand, remains to be elucidated as a symptom with limited information, which negatively affects the psychological and physical health, quality of life and treatment process of patients. The aim of this study was to investigate the relationship between sexual dysfunction and factors such as age, depression, disease duration, and disease severity in patients with HFS.

METHODS

Study Design

This is a prospective, descriptive study conducted with 50 hemifacial spasm patients who were followed up in the *Botulinum* toxin applications and movement disorders unit of the Neurology Clinic of Sancaktepe Şehit Prof. Dr. İlhan Varank Training and Research Hospital. The study was approved by the Sancaktepe Şehit Prof. Dr. İlhan Varank

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Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 12.08.2024, Decision No: 252). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Patient Population

Patients aged 18-65 years, heterosexual, giving informed consent and without concomitant movement disorders, severe chronic diseases and cognitive impairment were included in the study. All assessments were obtained from patient files and scales administered to patients at least 12 weeks after the last *Botulinum* toxin administration during the dose-ending period.

Patients' age, gender, education level, marital status, duration of illness, duration of *Botulinum* toxin treatment, and presence of comorbidities were obtained from their files filled out during regular end-of-dose evaluations at the *Botulinum* toxin administration clinic. Beck depression inventory (BDI) was used for mood assessment, HFS severity scale* was used to assess disease severity, and Arizona Sexual Experiences Rating Scale (ASLS) was used for sexual dysfunction.

Statistical Analysis

In this study, in addition to descriptive statistics, the Chi-square test was applied to examine the relationship between categorical variables and sexual dysfunction. The Mann-Whitney U test was used to assess differences between continuous variables. Spearman's correlation analysis was performed to examine the correlation between data that did not show normal distribution. Statistical significance was considered at $p < 0.05$, and GraphPad Prism 10 was used for the analyses.

RESULTS

Descriptive statistics included variables such as age, gender, educational status and marital status. The mean age of the patients was 50.05 ± 9.42 years. 58.2% were female and 41.8% were male (Figure 1). 78.2% of the patients were married and 21.8% were single (including widow) (Figure 2). While 63.6% of the patients had high school or higher education, 36.4% had primary or secondary school education (Figure 3, Table 1).

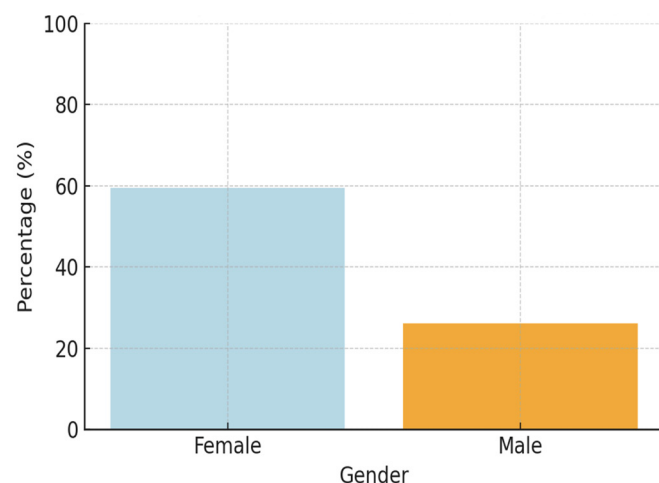


Figure 1. Gender distribution of the patient population

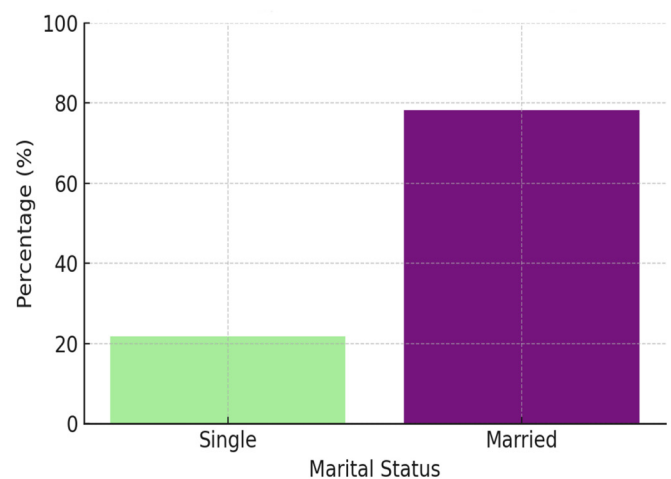


Figure 2. Marital status of the patient population

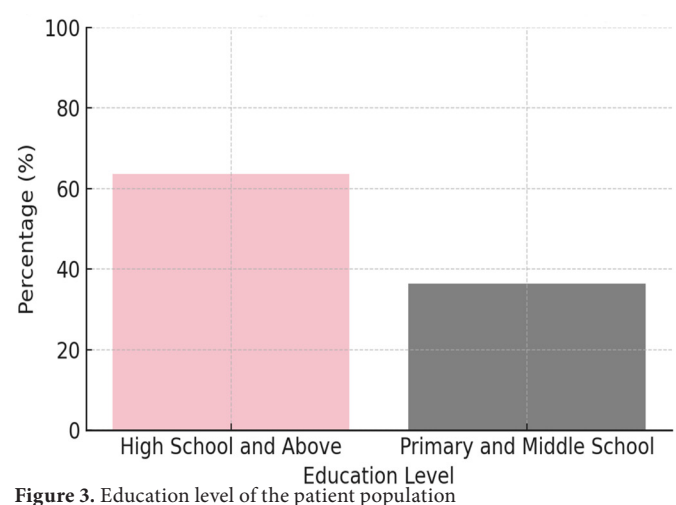


Figure 3. Education level of the patient population

Table 1. Comparison of sexual dysfunction and categorical variables (T test)	
Age (mean±SD)	50.05±9.42
Number of patients	55
Gender	
Female	n=32 (58.2%)
Male	n=23 (41.8%)
Education level	
High school and above	n=35 (63.6%)
Primary school and middle school	n=20 (36.4%)
Marital status	
Married	n=43 (78.2%)
Single (including widowed)	n=12 (21.8%)
Sexual dysfunction	
Present	n=25 (45.5%)
Absent	n=30 (54.5%)
Female patients (n=32)	
Sexual dysfunction present	n=19 (59.4%)
Male patients (n=23)	
Sexual dysfunction present	n=6 (26.1%)

SD: Standard deviation

The relationship between education level and HFS severity was analyzed to identify potential associations. Spearman correlation analysis revealed a significant negative correlation (Spearman $p=-0.30$, $p=0.026$), suggesting that individuals with lower levels of education tend to experience higher HFS severity.

When the relationship between sexual dysfunction and categorical variables was analyzed, a statistically significant relationship was found between gender and sexual dysfunction ($p=0.030$) (Figure 4). Sexual dysfunction was more common in women (Table 2).

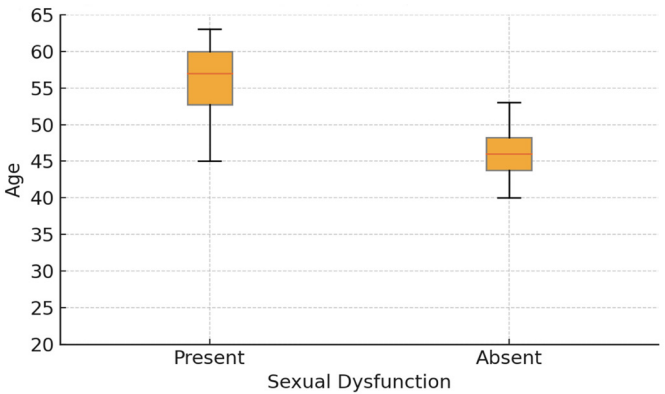


Figure 4. Age distribution by sexual dysfunction status (box plot)

Table 2. Comparison of sexual dysfunction with categorical variables (Chi-square test)			
Variable compared with sexual dysfunction	Chi-square value	p-value	Significance
Gender	4.71	0.03	Yes
Marital status	0.47	0.493	No
Education level	13.02	0.00	Yes

No significant relationship was found between marital status and sexual dysfunction ($p=0.493$) (Table 2). This result indicates that being married or single has no significant effect on the presence of sexual dysfunction. Marital status was not a determining factor for sexual dysfunction in these data.

A strong significant correlation was found between education level and sexual dysfunction ($p<0.001$) (Table 2). It is understood that sexual dysfunction may be more common in individuals with lower education levels. This finding suggests that education level is an important factor that may affect sexual health.

Mann-Whitney U test was applied to examine the relationship between age data and the presence of sexual dysfunction. Shapiro-Wilk test confirmed that the data were not normally distributed ($p=0.033$). According to the Mann-Whitney U test results, a statistically significant difference was found between

the ages of patients with and without sexual dysfunction ($U=656.0$, $p<0.001$). This finding suggests that age may be an important factor affecting the presence of sexual dysfunction. It is observed that sexual dysfunction increases with age.

Spearman correlation analysis was applied to examine the relationship between Beck Depression Inventory (BDI-II) and sexual dysfunction score (ASLS) (Figure 5). Shapiro-Wilk test confirmed that both variables were not normally distributed.

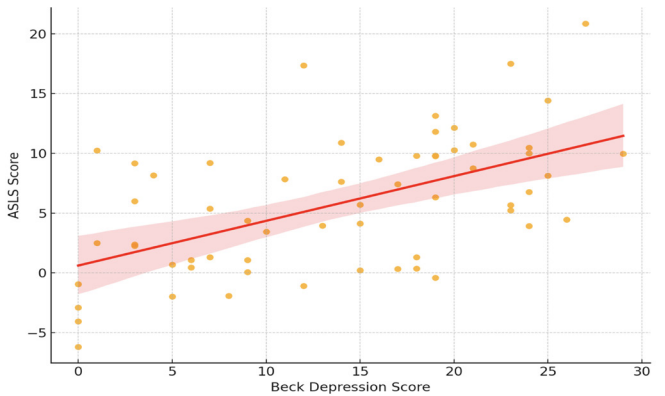


Figure 5. Correlation between beck depression score and ASLS sexual dysfunction score

ASLS: Arizona Sexual Experiences Rating Scale

Spearman's correlation analysis revealed a moderately positive and statistically significant relationship between depression score and sexual dysfunction score (Spearman's $p=0.478$, $p<0.001$). This result indicates that sexual dysfunctions increase with increasing levels of depression.

According to the correlation analysis results, a statistically significant and positive correlation was found between HFS severity and sexual dysfunction ($r=0.536$, $p=0.015$). This finding suggests that as the severity of HFS increases, sexual dysfunction also increases. Furthermore, a strong and statistically significant negative correlation was observed between the duration of *Botulinum* toxin treatment and sexual dysfunction ($r=-0.598$, $p=0.005$), indicating that sexual dysfunction decreases as the duration of treatment increases. On the other hand, no significant correlation was found between disease duration and sexual dysfunction ($r=0.023$, $p=0.924$), suggesting that disease duration had no significant effect on sexual dysfunction. Similarly, although there was a negative correlation between HFS severity and duration of *Botulinum* toxin treatment ($r=-0.386$, $p=0.092$), this relationship was not statistically significant (Table 3).

To further understand the factors influencing sexual dysfunction, logistic regression analysis expanded to include gender, age, depression score, disease duration, HFS severity, and treatment duration as predictors. The results indicate

Table 3. The relationship between HFS severity and sexual dysfunction, disease duration and botox duration				
Variable	HFS severity	Sexual dysfunction (ACYO)	Disease duration (years)	Botox duration (months)
HFS severity	1.0 ($p=0.0$)	0.536 ($p=0.015$)	0.003 ($p=0.989$)	-0.386 ($p=0.092$)
Sexual dysfunction (ASLS)	0.536 ($p=0.015$)	1.0 ($p=0.0$)	0.023 ($p=0.924$)	-0.598 ($p=0.005$)
Disease duration (years)	0.003 ($p=0.989$)	0.023 ($p=0.924$)	1.0 ($p=0.0$)	0.081 ($p=0.735$)
Botox duration (months)	-0.386 ($p=0.092$)	-0.598 ($p=0.005$)	0.081 ($p=0.735$)	1.0 ($p=0.0$)

ASLS: Arizona Sexual Experiences Rating Scale

that both gender and age remain significant predictors of sexual dysfunction in this more comprehensive model. Specifically, being female ($p=0.013$) and older age ($p=0.001$) are both significantly associated with a higher likelihood of sexual dysfunction. Although depression score demonstrated a positive association with sexual dysfunction, this was not statistically significant ($p=0.194$) in the context of other predictors. Disease duration, HFS severity, and treatment duration similarly showed no significant effects, with p -values of 0.487, 0.496, and 0.868, respectively, indicating that these disease-specific factors may not independently influence sexual dysfunction when controlling for demographic variables (Table 4).

Table 4. Multivariate analysis: factors affecting sexual dysfunction

Predictor	Coefficient	SE	z-value	p-value	Significant (p<0.05)
Constant	-22.24	6.45	-3.45	0.001	Yes
Gender (female)	3.48	1.40	2.48	0.013	Yes
Age	0.35	0.10	3.35	0.001	Yes
Depression score	0.15	0.12	1.30	0.194	No
Disease duration (months)	-0.01	0.01	-0.70	0.487	No
HFS severity	0.47	0.70	0.68	0.496	No
Treatment duration (months)	-0.004	0.03	-0.17	0.868	No

SE: Standard error

DISCUSSION

The aim of our study was to investigate the prevalence of sexual dysfunction in patients with HFS and to examine the relationship between sexual dysfunction and various factors such as age, depression, disease duration and severity. There are no studies on this subject in our country.

Chronic HFS symptoms interfere with social functioning in almost 90% of patients, leading to loss of self-confidence, social isolation and even depression that significantly impairs the quality of life of these patients.³ Despite the known effect of depression and anxiety on HFS symptoms,^{9,10} no study has evaluated the effect of these emotions on sexual dysfunction in HFS patients. Stigma is also one of the important factors causing depression. The effect of stigma on the quality of life of patients with HFS has also been shown.¹¹ Self-perceived stigmatization may impair factors such as self-confidence and body image, which are very important for sexual health. In our study, a moderate positive and statistically significant correlation was found between depression score and sexual dysfunction score. This result indicates that sexual dysfunctions increase with increasing depression level.

Although there are several studies in the literature indicating that sexual dysfunction is increased in patients with dystonia,¹² sexual dysfunction in HFS patients was compared with dystonia patients (spasmodic torticollis and blepharospasm patients) in only one study.¹³ In this study in which well-being in sexual life was evaluated and compared in patients with blepharospasm, cervical dystonia and hemifacial spasm, impaired sexual functioning was observed in all groups. In our study, 25 (45.5%) of HFS patients were found to have sexual dysfunction.

In the same study, dystonia patients (blepharospasm, cervical dystonia) were not satisfied with their sexual life, whereas HFS patients reported the same level of satisfaction as healthy controls.¹³ In this study, the fact that all patient groups (BFS, CD, HFS) had normal scores on the sexual avoidance subscale was interpreted by the authors of the study as indicating that the personal and emotional aspects of sexual life were excessively protected, especially in patients whose movement disorders were limited to craniofacial muscles.

In our study, a statistically significant and positive correlation was found between HFS severity and sexual dysfunction. This finding indicates that as the severity of HFS increases, sexual dysfunction also increases. This finding is thought to be a result of depression, stigma and negative effects on quality of life as the severity of the disease increases.

A study investigating sexual well-being in Blepharospasm, Spasmodic Torticollis and HFS found that sexual dysfunction was more common in women than in men. In a study published in 2023 by Zhu et al.¹⁴ investigating sexual function in Wilson's Disease, it was found that sexual dysfunction was more common in female patients. In our study, similar to other studies evaluating sexual dysfunction in movement disorders in the literature, sexual dysfunction was more common in women.

The fact that sexual dysfunction decreased as the duration of BoNT treatment was prolonged in the HFS patients included in the study, but no significant relationship was found between the duration of the disease and sexual dysfunction suggests that it may be related to the decrease in depression and anxiety levels as a result of the patient's observation of the decrease in symptoms as a result of treatment after BoNT injections, which is the most practical and effective treatment method of the disease, and getting used to the treatment process that continues in certain periods.

Limitations

Our study has 2 limitations. The first is the lack of a control group and the second is the small number of patients.

CONCLUSION

As a result, our study showed that the frequency of sexual dysfunction was high in patients with HFS. Sexual dysfunction has been shown to increase with depression and severity of HFS. HFS should not only be considered as a motor symptom, it should be considered as a disease that may impair the quality of life including sexual dysfunction because it may also affect body perception and stigma, especially because the facial muscles are affected, and patient evaluation and treatment approaches should be questioned from this point of view.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of the Sancaktepe Şehit Prof. Dr. İlhan Varank Training and Research Hospital Non-interventional Clinical Researches Ethics Committee (Date: 12.08.2024, Decision No: 252).

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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