THE RELATIONSHIP OF PSYCHOGENIC ERECTILE DYSFUNCTION WITH CORONAVIRUS ANXIETY IN THE COVID-19 PANDEMIC PERIOD

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ABSTRACT

Background/aim: *Our aim is to investigate the relationship of psychogenic erectile dysfunction(pED) that develops during the new coronavirus disease(COVID-19) pandemic with coronavirus anxiety using the Coronavirus Anxiety Scale(CAS) and the International Index of Erectile Function-5(IIEF-5) questionnaire.*

Materials and methods: *This study was conducted in Elazig Fethi sekin city hospital during January 2021 to March 2021. Medical history of male patients who were admitted to urology outpatient clinics were taken and physical examinations were performed. Morning serum fasting glucose, total testosterone and prolactine levels were measured. IIEF-5 questionnaire was filled by the patients. Two groups were formed as pED and control group. Both groups filled the CAS questionnaire and the results were compared statistically.*

Results: *IIEF-5 scores were 15.86±7.53 and 24.26±0.82 in the pED group and the control group, respectively. The CAS scores were 7.53±2.02 and 0.40±0.62 in the pED group and in the control group, respectively. There was a significant difference between these findings. There was a significant negative correlation between IEF-5 scores and CAS scores. (p^*=0.00) IIEF-5 scores were significantly lower in the pED group compared to the control group. (p^*=0.00) CAS scores were significantly higher in the pED group compared to the control group. (p^*=0.00) While there was a statistically significant difference between moderate pED and mild moderate pED in terms of CAS scores (p^*=0.02, p^*=0.00), there was no statistically significant difference between mild moderate pED and mild pED. (p=0.27).*

Conclusion: *In addition to high contagiousness and mortality rates, COVID-19 causes economic burden and financial losses, leading to negative individual and global psychosocial impact and increased anxiety. Since anxiety is one of the etiological causes of pED, pED encountered during the COVID-19 pandemic is also associated with coronavirus anxiety. Psychiatric support for coronavirus anxiety should be added to pED treatment.*

Keywords: *COVİD-19, pandemic, anxiety, psychogenic, erectile dysfunction.*

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Introduction

The new coronavirus disease (COVID-19) became a global problem in a short time after the pneumonia cases caused by Severe Acute Respiratory Syndrome-Coronavirus -2 (SARS-COV-2) virus were seen in Wuhan, Hubei Province, China in late December 2019. It was declared by the World Health Organization (WHO) as a Public Health Emergency on January 30, 2020, and as a pandemic on March 11, 2020[(1)]. COVID-19 has created a complex and constantly evolving situation in the world. Increased media information, difficulties in being able to reach health institutions, fear of food shortages and being infected at any moment have created significant psychological impact. Furthermore, rapid increase in new cases, prolonged quarantine periods, and deaths have significantly increased the anxiety related to

COVID-19[2]. In addition, the fact that most of the business sectors have shrunk due to the restrictions leading to loss of jobs by numerous people or fear of losing job result in anxiety. "Coronavirus Anxiety Scale" (CAS) was developed by Lee SA to detect anxiety related to the COVID-19 pandemic[3]. Turkish validation of the scale was achieved by Evren C et al.[4]. According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), erectile dysfunction (ED) is defined as the recurrent inability to achieve an erection, the inability to maintain an adequate erection, and/or a noticeable decrease in erectile rigidity during partnered sexual activity for at least 6 months.

As a result, this can lead to significant distress or difficulties in interpersonal relationships[5]. There are several interrelated factors in the emergence and persistence of ED. These factors are divided into three as psychogenic, organic and mixed types[6]. Psychogenic erectile dysfunction (pED), especially in young men, is a sudden development of performance anxiety, is characterized by the absence of an erection when having sexual intercourse while having an erection in different times and environments[7]. In pED, the diagnosis can be made easily by administering the International Index of Erectile Function (IIEF) Questionnaire along with taking a thorough medical history[8]. Health concerns, economic concerns and anxiety caused by the COVID-19 pandemic are also among the etiological causes of psychogenic erectile dysfunction. Our aim in this study was to investigate the relationship between coronavirus anxiety and pED that develops during the pandemic using CAS and IIEF-5 questionnaire.

Materials and methods

This study was conducted in Elazig Fethi sekin city hospital during January 2021 to March 2021. After the approval of Fırat University Non-Invasive Research Ethics Committee dated 14.01.2021 and numbered 2021/01-27, medical history of male patients who were admitted to Elazig Fethi Sekin City Hospital, Urology outpatient clinics were taken and physical examinations were performed. Morning serum fasting glucose (Beckman AU5800 autoanalyzer), total testosterone and prolactin (Beckman DXI-800 immunoassay) levels were measured. IIEF-5 questionnaire was filled by each patient. Two groups were formed as pED and control group. pED group consisted of 30 patients with no organic pathology in their medical history, no pathology in physical examination, normal glucose, total testosterone and prolactin levels, and an IIEF-5 total score of 21 and below, and the control group consisted of 30 male patients with an IIEF-5 score of 22 and above at the same age as the pED group and with normal glucose, total testosterone and prolactin levels. IIEF-5 questionnaire consists of 5 questions; each question is given a score between 0 and 5. A total score between 0 and 25 is calculated. Patients with a IIEF-5 score 21 or less are considered as ED. A score between 5 and 7 indicates severe erectile dysfunction, 8-11 moderate, 12-16 mildly moderate, 17-21 mild erectile dysfunction and 22-25 indicates no ED[8]. Patients in both groups filled the CAS questionnaire. CAS was developed to identify cases of dysfunctional anxiety associated with the COVID-19 pandemic.

Each item was created to determine the reflection of this particular form of anxiety. Specifically, it has cognitive, emotional, behavioral and physiological dimensions. In this scale, which consists of 5 questions, participants mark their answers to the questions asked, as one of the following: never, rarely-less than a day or two, a few days, more than 7 days, almost every day in the last two weeks. These answers are given the scores of 0,1,2,3,4 respectively. The sum of the scores is between 0 and 16, the higher the total score, the more severe the degree of anxiety[3]. Glucose, total testosterone, fasting glucose serum values along with CAS and IIEF-5 scores of pED and control group patients were compared. Statistical analyses were performed using the IBM Statistics SPSS Software Version 23 (IBM Corp., Armonk, NY, USA). For the variables that are normally distributed, the Independent-samples t test and means test were conducted for comparison. A P-value < 0.05 was considered statistically significant.

Results

The ages of the pED group were between 24-57 years and the mean age was 39.73±8.94 years, the age of the control group varied between 23-60 years and the mean age was 40.96±9.64 years. (p= 0.609)

The total testosterone levels of the patients was 4.18±0.92 μg/dL in the pED group, 4.16±1.21 μg/dL (1.75 - 7.81 μg/dL) in the control group, and prolactin level was 9.22±1.99 μg/dL in the pED group and 9.16±2.85 μg/dL (2.64-13.30 μg /dL) in the control group. Fasting blood glucose levels were 88.23±7.37

mg/dL and 88.26±6.93 mg/dL (74-100 mg/dL) in the pED group and control group, respectively. There was no statistically significant difference between the groups. (p=0.196, p=0.929, p=0.971) (Table 1).

	Total Testosteron (1.75 – 7.81 µg/dL)	Prolactin (2.64 -13.30 µg/dL)	Glucose (74 - 100 mg/dL)
pED group	4.18±0.92 µg/dL	9.22±1.99 µg/dL	88.23±7.37 mg/dL
Control group	4.16±1.21 µg/dL	9.16±2.85 µg/dL	88.26±6.93 mg/dL
p value	p=0.196	p=0.929	p=0.971

Table 1: Total testosterone, prolactin and glucose levels of the groups.

The mean IIEF-5 score was 15.86±3.39 and 24.26±0.82 in the pED group and in the control group, respectively. The mean CAS score was 7.53±2.02 in the pED group and 0.40±0.62 in the control group. There was a statistically significant difference between the groups. There was a significant negative correlation between IIEF-5 scores and CAS scores. (p^*= 0.00) The IIEF-5 scores were significantly lower in those with pED compared to the control group. (p^*=0.00) CAS scores were significantly higher in those with pED compared to the control group. (p^*= 0.00) (Table- 2).

	IIEF-5 score	CAS score
pED group	15.86±3.39	7.53±2.02
Control group	24.26±0.82	0.40±0.62
p value	p^*=0.00	p^*= 0.00

Table 2: IIEF-5 and CAS scores of the groups.
$^*p<0.05$.

Four (13.4%) of pED patients had moderate ED, 11 (36.6%) had mild-moderate and 15 (50%) had mild ED, according to their IIEF-5 scores. Severe ED was not seen (Table 3).

ED severity	Frequency	Percent %
Severe (score: 5-7)	0	0.0%
Moderate (score: 8-11)	4	13.4%
Mild-moderate (score: 12-16)	11	36.6%
Mild (score: 7-21)	15	50.0%
Total	30	100.0%

Table 3: Degrees of ED severity.

While there was a statistically significant difference between moderate ED and mild-moderate ED, and between moderate ED and mild ED in terms of CAS scores (p^*=0.02, p^*=0.00), there was no significant difference between mild-moderate ED and mild ED. (p=0.27).

Discussion

In addition to high contagiousness and mortality rates, COVID-19 leads to individual and global psychosocial impacts by causing psychiatric disorders, economic burden and financial losses[9]. While recent news about vaccines and vaccination had a positive psychological impact on individuals and society, those about mutations occurring in the virus create negative effects. Measures such as social distance, isolation and quarantine cause a negative impact on individuals, loss of freedom, separation from loved ones and uncertainty lead to negative psychological impacts[10]. Lack of information and insufficient transmission of necessary information to public enhance the uncertainty and threat. Studies have shown that such situations also occur in the Influenza A (H1N1) crisis and increase anxiety[11]. The thought that COVID-19 spreads faster than other epidemics such as influenza and poses a severe threat has caused it to be perceived as a high-risk epidemic in societies[12]. It is seen that mass tragedies, especially those involving infectious diseases, generally cause significant deterioration in the behavior of many people in the society, triggering increased fear and anxiety waves[13].

In a study, the prevalence of traumatic stress was 73.4%, depression 50.7%, general anxiety 44.7% and sleep disturbance 36.1% in individuals highly susceptible to COVID-19 infection[14]. Studies on the psychological effects of previous global disease outbreaks on society have revealed that people have pandemic-related concerns about getting ill, health anxiety, general anxiety, post-traumatic stress and suicidal tendencies[15, 16]. During the COVID-19 pandemic, many factors have led to several negative impacts on sexual behavior including reduction in the frequency of sexual intercourse, decrease in sexual intercourse and general satisfaction, significant increase in sexual avoidance behavior in women, and increase in masturbation-induced sexual satisfaction in men[17].

Admissions to urology clinics have increased significantly during the pandemic due to andrological problems. In a study, it was reported that the prevalence of ED increased in pandemic when pre-pandemic and pandemic periods were compared[18]. Anxiety and depression are the most prominent factors that result in deterioration of sexual function. There are many studies reporting the relationship between depression and anxiety and sexual function changes[19, 20]. In their study, Dunn et al. reported

that erectile dysfunction was observed 1.3-2.3 times more in people with anxiety and depression[21]. The diagnosis of pED can be made easily by taking a medical history, performing physical examination and laboratory tests. pED can develop due to insufficient sexual education, traumatic sexual experiences in childhood, conflict between couples, stressful situations in nature, stressful life events such as job loss or migration, aging anxiety, health concerns, general anxiety or depression and usually occurs suddenly, especially in young men. It accompanies performance anxiety[22].

There is no erection when having sexual intercourse while having spontaneous erections at different times and environments[7, 23]. While primary pED means lifelong inability to achieve successful sexual performance, secondary pED occurs after a satisfactory sexual performance period[24, 25]. In our patients, ED complaints have just started and they did not experience any problem with erection previously. Organic ED is associated with testosterone deficiency or hypogonadism and low prolactin levels[26]. In our patients, mean total testosterone values were 4.18±0.92 μg/dL in the pED group and 4.16±1.21 μg/dL in the control group. The mean prolactin values were 9.22±1.99 μg/ dL in the pED group and 9.16±2.85 μg/dL in the control group. The International Index of Erectile Function (IIEF-5) questionnaire, consisting of 5 questions, is used to determine the ED and its severity. Four (13.4%) of pED patients had moderate ED, 11 (36.6%) had mild-moderate and 15 (50%) had mild ED, according to their IIEF-5 scores.

Severe ED was not seen. Nocturnal penile tumescence and rigidity (NPTR) monitoring with RigiScan is still considered to be a useful method for diagnosis, although sometimes it gives incorrect results for pED at the present stage[27]. NPTR monitoring was not performed because pED sometimes can give false results in our patients, pandemic causes sleep disorders in most patients and patients did not want to come to the hospital again. Some researchers have also conducted topological studies in the brain using functional magnetic resonance imaging (fMRI) to investigate whether there is an organic disorder in pED[28]. CAS was developed to identify cases of dysfunctional anxiety associated with the COVID-19 pandemic[3]. This scaling format is based on the version that was created for cross-cutting symptom measure of the DSM-5 and used for achieving consistency with the American Psychiatric Association's system of measuring psychiatric symptoms and response to treatment over time where adults perform self-assessment[29]. CAS scores in our patients were 7.53±2.02 in the pED group and 0.40±0.62 in the control group. The pED patients had moderate CAS scores based on the highest 16 scores. CAS scores were significantly higher in the pED group compared to the control group. The high CAS scores in patients with pED in our study indicate that ED developing during the pandemic period has an impact on corona anxiety. Patients with pED are treated using pharmacological and/or psychosocial methods. Pharmacologically, phosphodiesterase 5 (PDE5) inhibitors are very useful and restore the self-confidence regarding erection. Psychosocial treatment, on the other hand, consists of anxiety reduction and desensitization, cognitive-behavioral interventions, enhanced sexual arousal, interpersonal assertiveness and communication training of couples[30]. Treatment for corona anxiety should be added to pED treatment during the pandemic period, and patients should be provided with psychological support. In conclusion, high contagiousness and mortality rate, measures such as quarantine, isolation, separation from loved ones, loss of freedom, uncertainty, economic burden and financial losses during the COVID-19 pandemic exert psychosocial negative impacts, especially anxiety. Since anxiety, extreme concern regarding health and work are also etiological causes in pED, pED seen during the COVID-19 pandemic is also associated with coronavirus anxiety.

Treatment for corona anxiety should be added to the pED treatment during the pandemic, and patients should be given psychological support.

References

1) Organization WH. WHO characterizes COVID-19 as a pandemic. World Health Organization. 2020.
2) Rubin GJ, Wessely S. The psychological effects of quarantining a city. Bmj. 2020; 368.
3) Lee SA. Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. Death studies. 2020; 44(7): 393-401.
4) Evren C, Evren B, Dalbudak E, Topcu M, Kutlu N. Measuring anxiety related to COVID-19: A Turkish validation study of the Coronavirus Anxiety Scale. Death studies. 2020: 1-7.

5) Edition F. Diagnostic and statistical manual of mental disorders. Am Psychiatric Assoc. 2013; 21.
6) Braun M. Wass mer G, Klotz T, Rei fen rath B, Ma thers M, En gel mann U (2000) Epi de mio lo gy of erec ti le dys func ti on: re sults of the Co lo gne Male Sur vey. Int J Im pot Res.12: 305-11.
7) Monseny J. Psicogenic erectile dysfunction. Archivos espanoles de urologia. 2010; 63(8): 599-602.
8) Rosen RC, Cappelleri J, Smith M, Lipsky J, Pena B. Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. International journal of impotence research. 1999; 11(6): 319-26.
9) Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, et al. Psychosocial impact of COVID-19. Diabetes & Metabolic Syndrome: Clinical Research & Reviews. 2020; 14(5): 779-88.
10) Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The lancet. 2020; 395(10227): 912-20.
11) Taha SA, Matheson K, Anisman H. H1N1 was not all that scary: Uncertainty and stressor appraisals predict anxiety related to a coming viral threat. Stress and health. 2014; 30(2): 149-57.
12) Hong S, Collins A. Societal responses to familiar versus unfamiliar risk: comparisons of influenza and SARS in Korea. Risk Analysis. 2006; 26(5): 1247-57.
13) Balaratnasingam S, Janca A. Mass hysteria revisited. Current Opinion in Psychiatry. 2006; 19(2): 171-4.
14) Liu S, Yang L, Zhang C, Xiang Y-T, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry. 2020; 7(4): e17-e8.
15) Chong M-Y, Wang W-C, Hsieh W-C, Lee C-Y, Chiu N-M, Yeh W-C, et al. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. The British Journal of Psychiatry. 2004; 185(2): 127-33.
16) Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. The Canadian Journal of Psychiatry. 2009; 54(5): 302-11.
17) Duran MB, Yildirim O, Kizilkan Y, Tosun C, Cirakoglu A, Gultekin MH, et al. Variations in the Number of Patients Presenting With Andrological Problems During the Coronavirus Disease 2019 Pandemic and the Possible Reasons for These Variations: A Multicenter Study. Sexual Medicine. 2021; 9(1): 100292.
18) Karagöz MA, Gül A, Borg C, Erihan İB, Uslu M, Ezer M, et al. Influence of COVID-19 pandemic on sexuality: a cross-sectional study among couples in Turkey. International Journal of Impotence Research. 2020: 1-9.
19) Jiang T, Osadchiy V, Mills JN, Eleswarapu SV. Is it all in my head? Self-reported psychogenic erectile dysfunction and depression are common among young men seeking advice on social media. Urology. 2020; 142: 133-40.
20) Yang Y, Song Y, Lu Y, Xu Y, Liu L, Liu X. Associations between erectile dysfunction and psychological disorders (depression and anxiety): A cross-sectional study in a Chinese population. Andrologia. 2019; 51(10): e13395.
21) Dunn KM, Croft PR, Hackett GI. Association of sexual problems with social, psychological, and physical problems in men and women: a cross sectional population survey. Journal of Epidemiology & Community Health. 1999; 53(3): 144-8.
22) Capogrosso P, Colicchia M, Ventimiglia E, Castagna G, Clementi MC, Suardi N, et al. One patient out of four with newly diagnosed erectile dysfunction is a young man-worrisome picture from the everyday clinical practice. The journal of sexual medicine. 2013; 10(7): 1833-41.
23) Corona G, Petrone L, Mannucci E, Magini A, Lotti F, Ricca V, et al. Assessment of the relational factor in male patients consulting for sexual dysfunction: the concept of couple sexual dysfunction. Journal of andrology. 2006; 27(6): 795-801.
24) Carvalho J, Nobre P. Predictors of men's sexual desire: The role of psychological, cognitive-emotional, relational, and medical factors. Journal of Sex Research. 2011; 48(2-3): 254-62.
25) Cera N, Pizzi SD, Di Pierro ED, Gambi F, Tartaro A, Vicentini C, et al. Macrostructural alterations of subcortical grey matter in psychogenic erectile dysfunction. PLoS One. 2012; 7(6): e39118.
26) Lunenfeld B, Mskhalaya G, Zitzmann M, Arver S, Kalinchenko S, Tishova Y, et al. Recommendations on the diagnosis, treatment and monitoring of hypogonadism in men. The Aging Male. 2015; 18(1): 5-15.
27) Zou Z, Lin H, Zhang Y, Wang R. The role of nocturnal penile tumescence and rigidity (NPTR) monitoring in the diagnosis of psychogenic erectile dysfunction: a review. Sexual medicine reviews. 2019; 7(3): 442-54.
28) Chen J, Chen Y, Chen G, Dai Y, Yao Z, Lu Q. Altered brain networks in psychogenic erectile dysfunction: a resting-state fMRI study. Andrology. 2017; 5(6): 1073-81.
29) Association AP. American Psychiatric Association: Diagnostic and Statistical Manual ofMental Disorders. Washington D. c.: American Psychiatric Press; 1994.
30) Schmidt HM, Munder T, Gerger H, Frühauf S, Barth J. Combination of psychological intervention and phosphodiesterase-5 inhibitors for erectile dysfunction: A narrative review and meta-analysis. The journal of sexual medicine. 2014; 11(6): 1376-91.

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