

Effect of COVID-19 Pandemic on Male Sexual Behaviors and Erection Quality

COVID-19 Pandemisinin Erkek Cinsel Davranışlarına Ve Ereksiyon Kalitesine Etkisi

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Özet

Amaç: COVID-19 salgını tüm dünyada insanların yaşamlarını etkilemeye devam etmektedir. Yaşam tarzlarındaki değişikliklerden kaynaklanan kısıtlamaların insanların ruh sağlığı ve cinsel sağlığını etkilediği gösterilmiştir. Bu çalışma COVID-19 pandemi sürecinde evden çıkma yaşağı ve izolasyon uygulamasının erken ve geç dönemlerinde erkek cinsel davranışları ve ereksiyon durumlarındaki değişiklikleri ortaya koymayı amaçlamaktadır.

Gereç ve Yöntemler: Çalışmaya aktif cinsel hayatı olan 206 gönüllü erkek katılmıştır. Pandemi sırasında cinsel işlev ve ereksiyonu değerlendirmek için Uluslararası Eretil İşlev Formu (IIEF-15) ve ruh halini değerlendirmek için Beck Depresyon Envanteri (BDE) uygulandı.

Bulgular: Türkiye’de evde kısıtlamaların ve izolasyonun ilk ayı olan 2020 Nisan ayında ereksiyon, cinsel istek durumu, cinsel ilişki ve/veya masturbasyon sıklığı ve zevk alma durumunun anlamlı olarak arttığı ($p<0,001$), sürecin uzamasıyla mayıs ayında düştüğü ($p<0,001$) saptanmıştır. Pandemi sürecinde depresyon derecelerinin de anlamlı olarak arttığı saptanmıştır.

Sonuç: Katılımcıların nisan ayında bu durumu izne çıkma olarak değerlendirdiği ve evde olma rahatlığı ile cinsel davranış ve ereksiyona pozitif bir katkı sağladığı görülürken, sürecin uzaması ile kişilerin gelir durumlarında azalma, kaygı ve depresyon artışı ile mayıs ayında ereksiyon ve cinsel davranışlarda anlamlı bir düşme saptanmıştır.

Anahtar Kelimeler: Covid-19, Ereksiyon Kalitesi, Erkekler, Depresyon, Cinsel davranışlar

Abstract

Objective: COVID-19 pandemic continues to affect peoples’ lives throughout the world. It has been demonstrated that restrictions due to lifestyle changes affect peoples’ mental and sexual health. This study aimed to examine changes in male sexual behaviors and erectile status in early and late periods of lockdown and isolation during the COVID-19 pandemic.

Material and Methods: A total of 206 volunteer males with active sexual lives were enrolled in the study. International Index of Erectile Function (IIEF-15) was adopted to assess sexual function and erection and Beck Depression Inventory (BDI) was adopted to assess mental status during the pandemic.

Results: Erection, sexual desire, sexual intercourse and/or masturbation frequency and sexual pleasure increased significantly during the first month of the lockdown and isolation in Turkey, April 2020 ($p<0.001$), and it declined in May with the prolongation of the process ($p<0.001$). Levels of depression have increased significantly during the pandemic as well.

Conclusion: This is the first study to examine male sexual behaviors and erection status separately in April and May, in the early period when lockdowns and isolation started due to the pandemic and in the late period with the prolongation of the process, however further research is needed.

Keywords: Covid-19, Erection Quality, Men, Depression, Sexual behaviors

This study was reviewed and approved by the Haydarpaşa Numune Training and Research Hospital Clinical Research Ethics Committee 29.06.2020/123-2263. All research was performed in accordance with relevant guidelines/regulations, and informed consent was obtained from all participants.

INTRODUCTION

Globally, as of the end of December 2020, within the ten month period since the onset of the corona virus disease (COVID-19) pandemic, the number of confirmed cases has approached 80 million and the number of deaths 1,800,000 (1). The number of confirmed cases in Turkey has exceeded 2,100,000 and the number of deaths has exceeded 19,000 as of the end of December 2020, since the first case on 11th March 2020 (2).

The COVID-19 pandemic has been continuing to affect the general well-being of society worldwide to a great extent. Individual health status and uncertainties about jobs, lockdown, social distancing and online education affect the mental state, anxiety and depression levels, as well as sleeping and eating habits (3).

The COVID-19 pandemic raises a wide range of concerns covering physical morbidity and mortality, mental health, economics, education and interpersonal relationships. Sexual health should also be questioned during the pandemic (4-8). The definition of sexual health is defined by the World Health Organization and defined as a state of physical, mental and social well-being related to sexuality.

The COVID-19 pandemic is very likely to affect sex life due to its personal, environmental and economic impacts. It can affect the individual sexual lives with its negative impact on mental and physical health. This concern can also lead to impairment of the sexual pleasure mental state. In contrast, it is also asserted that sexual intercourse frequency of individuals with their partners may increase during this process with prolongation of their home-stay periods (9).

The pandemic caused by COVID-19 has created serious negative effects on individual sexual behaviors as well (10, 11). People's lifestyles had to change due to the fears arising from the high risk of transmission of COVID-19, lockdowns imposed by governments and other restrictions. These new rules and changes have led to changes in our normal habits and behaviors by affecting us psychologically (8, 12, 13). Continuous diseases and disease-related death images led to increased anxiety, fear, depression, anger, guilt and stress.

In Turkey, forced lockdowns in April were well-tolerated by the society in the beginning as they created

a feeling of vacation, but prolongation of this process, changes in daily routines, restriction of freedoms, decrease or even reset of income levels have led to the development of feelings of helplessness. One of the most important fields of psychological consequences for males was in sexual behavior and erection (10).

There is very little published literature on male sexual behavior during lockdown in the pandemic. In this current study, we aimed to examine changes in male sexual behaviors and erectile status in lockdowns in April and May and isolation in Turkey during the COVID-19 pandemic.

MATERIAL AND METHODS

This study was executed with 206 heterosexual male patients, between ages 18-69, with active sexual lives who were admitted to the İstanbul Haydarpaşa Training and Research Hospital, Urology Clinic between 01.07.2020 and 31.07.2020 with different complaints. Ethical board approval was done. The study was in conformity with the Helsinki declaration. The patients were seen in the outpatient clinic. The patients receiving treatment due to erectile dysfunction, and those with comorbid diseases such as any malignancy, psychiatric, neurologic or cardiac disease, or renal impairment were excluded from the study. Moreover, individuals having problems in their marriages and whose COVID-19 test result was positive or who had close contact with COVID-19 patients during that period were also not included in the study.

Questions about age, education, working condition, income, presence of active sexual life, state of forced lockdown during the pandemic and elementary or extended family were posed to the participants to collect sociodemographic data for the study. Besides the demographic questions, the participants were questioned about their erectile status, sexual history and depression in April and May when strict quarantine measures were implemented. In addition to the survey we prepared, Turkish versions of the International Index of Erectile Function (IIEF) and Beck Depression Inventory (BDI) were administered to participants. The International Erectile Function Questionnaire-Erectile Function Domain (IIEF-15) Index containing 15 questions was used to define the erectile function of the participants. The IIEF-15 questionnaire is the most common scale to

evaluate sexual desire, orgasm, intercourse satisfaction and overall satisfaction in addition to erectile function. Its Turkish validated forms are used (14, 15). According to IIEF score, severity of erectile dysfunction (ED) is classified into four diagnostic categories: mild ED (EF score over 21); mild to moderate (EF score:16-21); moderate (EF score: 11-15); and severe (EF score: under 11). We used the BDI containing 21 questions to evaluate the participants' psychological state. The BDI is composed of items to evaluate psychological and physical symptoms (16). Scores between 0-13 indicate no depression, scores between 14-24 indicate moderate depression and scores over 25 indicate severe depression.

Statistical Analysis

Data analysis was done using the SPSS 25 package program. Frequency and percentage values of demographic variables are presented. The suitability of the data for normal distribution was tested with the Shapiro-Wilk test. Since the assumption of compliance with normal distribution could not be met, the analyzes were performed with non-parametric statistical methods. Wilcoxon signed-rank test was used for comparisons between two dependent non-parametric variables. P<0.05 was considered statistically significant.

RESULTS

Mean age of the participants was 45.5 years (18-69) and mean body mass index was 26.4kg/m² (20.1-32.9). Education level was 37.9% primary school, 35.4% high school and 26.7% university. About 83% of the participants with active sexual life indicated that they had sexual partners, whereas 17% of them stated that they had no regular partner. 21.8% of the participants worked in the public sector, 40.4% of them worked in the private sector, 8.7% of them were tradesmen, 9.7% of them were wage workers, 12.6% of them were retired and 6.8% were unemployed. 40.3% indicated that their monthly income did not change in the pandemic months, April-May 2020, whereas 58.7% indicated that their income decreased or reset, and 1% reported that their income increased. The participants expressed that they stayed at home at a rate of 88.8% during the same period. Demographic data of the participants is given in Table-1

and descriptive statistics about the participants' sexual states are given in Table-2.

Table 1. Demographic data of the participants (n=206)

		n	%
Education	Primary School	78	37.9
	High School	73	35.4
	University	55	26.7
Working Condition	Public Sector	45	21.8
	Private Sector	83	40.4
	Tradesman	18	8.7
	Wage worker	20	9.7
	Retired	26	12.6
	Unemployed	14	6.8
Income	Decreased	2	1
	Stable	83	40.3
	Cut by half	34	16.5
	Sharply decreased	60	29.1
	Zero	27	13.1
Were you at home?	Full time at home	183	88.8
	Half time at home	21	10.2
	Same as before	2	1
Family	Elementary Family	183	88.8
	Extended Family	23	11.2

According to IIEF scores, 67% of the participants did not have erectile dysfunction and 33% had moderate erectile dysfunction. It has been observed that with the change in their education level, working condition and income level, the participants' state of erection and sexual desire, and their frequency of sexual intercourse and/or masturbation increased significantly. Their sexual pleasure from sexual intercourse and/or masturbation increased (p<0.001) in April 2020, which was the first month of lockdown due to the pandemic. Full time home stay (p=0.31) and type of family (elementary or extended) did not affect these sexual states in the same period (p=0.74). In the second month of the pandemic, May 2020, in terms of working conditions, the state of erection, sexual desire, frequency of sexual intercourse and/or masturbation and sexual pleasure decreased significantly for employees of all sectors (p<0.001), moreover private sector employees, tradesmen and wage workers were much more affected

compared to public employees and retirees ($p < 0.001$). It has been observed that each of the three sexual states including erection decreased for all education levels and income groups ($p < 0.001$). In the same period, full time home stay

($p = 0.21$) and type of family (elementary or extended family) did not affect these sexual states ($p = 0.47$). Depression levels of the participants increased significantly in May according to the BDI ($p < 0.001$) (Table-3).

Table 2. Descriptive statistics about the sexual status of the participants

	APRIL Med (min-max)	MAY Med (min-max)	Z	p
State of Sexual Desire	5 (1-6)	4 (1-6)	-11,412	<0,001*
Sexual Intercourse Frequency	4 (2-6)	3 (2-6)	-11,598	<0,001*
Sexual Pleasure	4 (2-5)	4 (2-5)	-8,494	<0,001*

Wilcoxon

Table 3. Descriptive statistics about participants state of depression

May							
April	Depression of state	Minimum	Mild	Moderate	Severe	Total	p
	Minimum	55 (31,6)	44 (25,3)	51 (29,3)	24 (13,8)	174 (100)	<0,001*
	Mild	0 (0)	9 (30)	3 (10)	18 (60)	30 (100)	
	Moderate	0 (0)	0 (0)	0 (0)	1 (100)	1 (100)	
	Severe	0 (0)	0 (0)	0 (0)	1 (100)	1 (100)	

Chi square

DISCUSSION

The COVID-19 pandemic has led to disruption in health systems, deterioration in social life, decrease in income levels, deterioration of people’s mood and a great number of deaths all over the world (17). A change in social life has been observed worldwide since the beginning of 2020 as a result of the COVID-19 pandemic (19). A substantial population has been isolated throughout the world since the beginning of April 2020 (17). Restrictions have been implemented in Turkey as of April. In this study, we evaluated the situations in April and May separately in order to investigate how the effects of the pandemic, social restriction and isolation changed male sexual behaviors and erection. This study is important since it is the first study to examine male

sexual behaviors and erection status in the early period of lockdown due to the pandemic and in a later period with the prolongation of the process.

There are a limited number of studies on sexual behaviors in the COVID-19 pandemic. Some of the research on this subject is on couples, whereas other research is on female sexual behaviors. In a study performed in Italy on couples, the majority of the couples did not reported any difference in their sexuality despite the difficulties of the pandemic (18). In most of the studies conducted during the pandemic, the state of sexual activity and sexual intercourse frequency were evaluated. In a study performed in Spain, a decrease was detected in the state of sexual activity and sexual intercourse frequency in 31% of the participants,

an increase has been observed in 14% and masturbation rates increased 10%. It has been indicated that forced home working, stress of obeying social distancing, continuous presence of children at home and fear of infection decreased the frequency of sexual activity, intercourse and libido by affecting the individual's mental state, and also COVID-19 stress could cause erectile dysfunction. In contrast, other individuals experienced an increase in their sexual activity with their partners due to excess free time at home, and those without a partner could have an increase in masturbation with excess free time and lack of physical contact (10). In our study, similarly an increase in masturbation frequency was observed in April. Excess free time, lack of intimacy with others, stress caused by risk of infection in case of intimacy with people may be the basic reasons for the increase in masturbation. Even though masturbation helps some people achieve sexual satisfaction without risk of COVID-19 infection, a high rate of masturbation is associated with reduced quality of life and sexual satisfaction life, relationship, and mental health (19).

The majority of the participants in a study performed in Taiwan indicated that no difference occurred in their sexual lives, 13.4% of them reported that satisfaction in their sexual lives and sexual activities decreased, 1.9% stated that the satisfaction of their sexual lives increased and 2.9% indicated that their sexual activity frequency increased. Reasons for a decrease might be associated with an increase of general anxiety due to high infection risk and people might perceive having sex to be unsafe during the pandemic since the Taiwan government suspended the sex industry. In conclusion, decrease of sexual satisfaction has led to a decrease in sexual activity and sexual partner searching activities (4).

In a study performed in Turkey with only females, it was found that female sexual desire and sexual intercourse frequency significantly increased during the COVID-19 pandemic, however their quality of sexual life decreased significantly. The reason for the increase in sexual desire and sexual intercourse frequency has been demonstrated as more time passed at home and no loss of living space during pandemic, unlike disasters such as earthquakes and floods (9).

In another study performed in Italy, even though more than 40% of the participants reported an increased sexual desire in the quarantine period, they have not defined an increase in sexual intercourse frequency. In addition, while sexual satisfaction decreased substantially during the quarantine, more than half of the participants in the survey reported that their sexual satisfaction completely disappeared. These results were explained with an increase reported in autoerotism in 40% of the participants and a high prevalence of pornography use among the answers (18). It is known that there is a negative correlation between the use of pornography and sexual satisfaction (20).

In addition, it was observed that depression and anxiety increased in sexually active partners with the effect of the pandemic period. They reported that lack of sexual activity increased the risk of developing anxiety and depression (21).

In our study, it has been observed that depression levels of the participants increased significantly during the April-May 2020 pandemic period, according to the BDI ($p < 0.001$). It has been seen that erection and all three sexual status decreased for all education and income levels ($p < 0.001$). In the same period, full time home stay and type of family, elementary or extended, did not affect the sexual status ($p = 0.21$ and 0.47).

This study has some limitations. Number of participants in this study was relatively low. The study focused on the sexual behaviors only of males but changes in female sexual behaviors during a pandemic can affect the sexual behaviors of males.

CONCLUSION

It has been observed that, in April, the first month of the lockdown, the participants considered the situation as vacation with the comfort of being at home, and they were not affected negatively by the current pandemic. Even a statistically significant increase was detected in their erection quality, sexual intercourse and/or masturbation quantity, sexual desire and pleasure. With the prolongation of the home stay period and when income levels were affected, anxiety and depression levels increased, while erection, sexual desire, sexual intercourse and/or masturbation frequency and sexual pleasure decreased significantly.

Conflict of Interest: None.

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Ethics Committee: Haydarpaşa Numune Training and Research Hospital Clinical Research Ethics Committee 29.06.2020/123-2263.

REFERENCES

- World Health Organization (WHO), Geneva, Switzerland. WHO Coronavirus Disease (COVID-19) Dashboard. Accessed Jun 29, 2020. <https://covid19.who.int/>
- T.C.Sağlık Bakanlığı. Accessed 28 June, 2020. <https://covid19.saglik.gov.tr/>
- Panzeri M, Ferrucci R, Cozza A, Fontanesi L. Changes in Sexuality and Quality of Couple Relationship During the COVID-19 Lockdown. *Front Psychol.* 2020;11:565823. <https://doi.org/10.3389/fpsyg.2020.565823>
- Ko NY, Lu WH, Chen YL, Li DJ, Chang YP, Wu CF, et al. Changes in Sex Life among People in Taiwan during the COVID-19 Pandemic: The Roles of Risk Perception, General Anxiety, and Demographic Characteristics. *Int J Environ Res Public Health.* 2020;17(16). <https://doi.org/10.3390/ijerph17165822>
- Torales J, O'Higgins M, Castaldelli-Maia JM, Ventriglio A. The outbreak of COVID-19 coronavirus and its impact on global mental health. *Int J Soc Psychiatry.* 2020;66(4):317-20. <https://doi.org/10.1177/0020764020915212>
- McIntyre RS, Lee Y. Preventing suicide in the context of the COVID-19 pandemic. *World Psychiatry.* 2020;19(2):250-1. <https://doi.org/10.1002/wps.20767>
- Turban JL, Keuroghlian AS, Mayer KH. Sexual Health in the SARS-CoV-2 Era. *Ann Intern Med.* 2020;173(5):387-9. <https://doi.org/10.7326/m20-2004>
- Culha MG, Demir O, Sahin O, Altunrende F. Sexual attitudes of healthcare professionals during the COVID-19 outbreak. *Int J Impot Res.* 2021;33(1):102-9. <https://doi.org/10.1038/s41443-020-00381-9>
- Yuksel B, Ozgor F. Effect of the COVID-19 pandemic on female sexual behavior. *Int J Gynaecol Obstet.* 2020;150(1):98-102. <https://doi.org/10.1002/ijgo.13193>
- Ibarra FP, Mehrad M, Di Mauro M, Godoy MFP, Cruz EG, Nilforoushzadeh MA, et al. Impact of the COVID-19 pandemic on the sexual behavior of the population. The vision of the east and the west. *Int Braz J Urol.* 2020;46(suppl.1):104-12. <https://doi.org/10.1590/s1677-5538.Ibju.2020.S116>
- Karagöz MA, Gül A, Borg C, Erihan İ B, Uslu M, Ezer M, et al. Influence of COVID-19 pandemic on sexuality: a cross-sectional study among couples in Turkey. *Int J Impot Res.* 2020;1-9. <https://doi.org/10.1038/s41443-020-00378-4>
- Chew QH, Wei KC, Vasoo S, Chua HC, Sim K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: practical considerations for the COVID-19 pandemic. *Singapore Med J.* 2020;61(7):350-6. <https://doi.org/10.11622/smedj.2020046>
- Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. *Urology.* 1997;49(6):822-30. [https://doi.org/10.1016/s0090-4295\(97\)00238-0](https://doi.org/10.1016/s0090-4295(97)00238-0)
- Akkus E, Kadioglu A, Esen A, Doran S, Ergen A, Anafarta K, et al. Prevalence and correlates of erectile dysfunction in Turkey: a population-based study. *Eur Urol.* 2002;41(3):298-304. [https://doi.org/10.1016/s0302-2838\(02\)00027-1](https://doi.org/10.1016/s0302-2838(02)00027-1)
- Beck AT, Steer RA. Internal consistencies of the original and revised Beck Depression Inventory. *J Clin Psychol.* 1984;40(6):1365-7. [https://doi.org/10.1002/1097-4679\(198411\)40:6<1365::aid-jclp2270400615>3.0.co;2-d](https://doi.org/10.1002/1097-4679(198411)40:6<1365::aid-jclp2270400615>3.0.co;2-d)
- Jacob L, Smith L, Butler L, Barnett Y, Grabovac I, McDermott D, et al. Challenges in the Practice of Sexual Medicine in the Time of COVID-19 in the United Kingdom. *J Sex Med.* 2020;17(7):1229-36. <https://doi.org/10.1016/j.jsxm.2020.05.001>
- Cocci A, Giunti D, Tonioni C, Cacciamani G, Tellini

- R, Polloni G, et al. Love at the time of the COVID-19 pandemic: preliminary results of an online survey conducted during the quarantine in Italy. *Int J Impot Res.* 2020;32(5):556-7. <https://doi.org/10.1038/s41443-020-0305-x>
18. Brody S, Costa RM. Satisfaction (sexual, life, relationship, and mental health) is associated directly with penile-vaginal intercourse, but inversely with other sexual behavior frequencies. *J Sex Med.* 2009;6(7):1947-54. <https://doi.org/10.1111/j.1743-6109.2009.01303.x>
19. Li G, Tang D, Song B, Wang C, Qunshan S, Xu C, et al. Impact of the COVID-19 Pandemic on Partner Relationships and Sexual and Reproductive Health: Cross-Sectional, Online Survey Study. *J Med Internet Res.* 2020;22(8):e20961. <https://doi.org/10.2196/20961>
20. Dwulit AD, Rzymiski P. The Potential Associations of Pornography Use with Sexual Dysfunctions: An Integrative Literature Review of Observational Studies. *J Clin Med.* 2019;8(7). <https://doi.org/10.3390/jcm8070914>
21. Mollaioli D, Sansone A, Ciocca G, Limoncin E, Colonnello E, Di Lorenzo G, et al. Benefits of Sexual Activity on Psychological, Relational, and Sexual Health During the COVID-19 Breakout. *J Sex Med.* 2021;18(1):35-49. <https://doi.org/10.1016/j.jsxm.2020.10.008>