This is an accepted article in press for IJMDC
The designed pdf version will be available soon.

**Title:** The Effects of Home Quarantine during COVID-19 on Male Potency

**Running title:** The Effects of Home Quarantine during COVID-19 on Male Potency

**Type:** Original article

**Authors:**
Hadi Adnan Mohammed, Jaffar Mohammed Almozayenm, Jawad Alzayer, Abdullah AlQatari, Hamed M Eldarawany

**Affiliation:**
Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

**Corresponding author:**
Hadi Adnan Mohammed
Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

**Email:** hadiadnan49@gmail.com
Abstract:

Background:
Impotency or erectile dysfunction is a multifactorial condition. Psychological problems are one of the leading causes of erectile dysfunction. Erectile dysfunction has adverse effects on the quality of life of men, which can also be reflected in their partners. The present study aimed at finding whether the home quarantine during the COVID 19 pandemic and its negative psychological impacts did affect the male potency in Saudi population.

Methods:
The International Index of Erectile Function-5 questionnaire was used to assess the potency of males during the period of home quarantine secondary to the COVID 19 pandemic.

Results:
Among the studied subjects, most of the men (65%) that participated were young and healthy. It was found that most of the participants exhibited a negative correlation between the home quarantine of Covid 19 and their potency.

Conclusion:
The study found no negative correlation between the home quarantine during COVID 19 pandemic and male potency. Further extensive studies are need to be conducted to better understand the correlation and to reach inclusive evidence.

Keywords: Erectile dysfunction, impotency, COVID-19, quarantine, impotency.
Introduction:

Male potency is the ability to acquire an erection and keep it firm enough for sex. This event is initiated mainly by the vascular system, following that is the neurological system [1]. On the other hand, impotence or erectile dysfunction describes the inability of males that reached sexual maturity to initiate an erection or maintain it due to physiological, psychological, or the use of certain drugs [2]. Erectile dysfunction (ED) can either be primary or secondary. Primary ED can be due to psychological origins and has been present since sexual intercourse was attempted. At the same time, secondary ED is acquired in individuals who did not initially have it earlier in their lives [3,4]. The risk factors that precipitate impotence can be categorized into four groups, physiological, psychological, drug-related, and miscellaneous factors [1]. Physiological factors such as obesity, hypertension, diabetes mellitus, dyslipidemia, cardiovascular diseases, and psychological factors such as anxiety and depression. Drug-related erectile dysfunction is those occurred secondary to receiving certain drugs like antidepressants, serotonin reuptake inhibitors (SSRIs) in particular, sympathetic blockers such as clonidine, thiazide diuretics, ketoconazole, and other recreational drugs like cocaine. Miscellaneous ED are related to smoking, decreased activity, and unhealthy lifestyle [5]. Male impotence can be treated through lifestyle changes, medication like phosphodiesterase-5 inhibitors, surgeries, or vacuum-assisted erection devices [2]. On March 2, 2020, the COVID-19 outbreak has seen the government of Saudi Arabia impose specific regulations on the people to try and control the spread of the infection. Since then, people have been in quarantine for the most time of the year. The consequences of the outbreak have caused people to lose their loved ones, jobs, and freedom. The levels of anxiety and depression are increased during quarantine, and many physio-psycho-social levels are affected during these periods [6]. The adverse psychological effects on the people secondary to the home quarantine may lead to undesirable effects on Sexual desire and male potency [1]. This study aimed at providing insight into how much quarantine during the Covid-19 pandemic impacted male potency.

Methods

This study was conducted between October 2020 and April 2021. The primary method for conducting this research was implementing a survey and reviewing some literature, if any. In this study, The IIEF-5 (International Index of Erectile Function-5) is an international questionnaire for identifying erectile dysfunction distributed to healthy adult males. Boys who have yet to reach
puberty were excluded from the study. In addition, any participant who has a previous history of ED, receiving PDE5 inhibitors, those known to have psychiatric problems, or receiving antipsychotic drugs were excluded from the study. The questionnaire was sent to the community via social media. Every person who participates in the study fills this questionnaire two times. The first time is used to assess the participant potency before the period of COVID 19 home quarantine. In contrast, the second one is used to assess the potency after the period of home quarantine. The data were collected from the questionnaire that denotes the male potency before. After the period of COVID 19, home quarantine was compared to each other to detect whether the quarantine affects the male potency. The data were collected in Microsoft excel sheet 2016 version and were analyzed using IBM Statistical Package for the Social Sciences (SPSS) program 26.0 2019 version.

Results

Regarding the questionnaire, there were 158 replies. As the exclusion criteria mentioned, all people who had any previous history of ED, receiving PDE5 inhibitors, those known to have psychiatric problems, or receiving antipsychotic drugs, and some others who did not accept to participate were excluded from the study. Concerning erectile dysfunction, 3 out of 158 (1.9%) reported positive for the dysfunction. Regarding previously diagnosed psychological problems, 13 (8.2%) individuals reported psychological problems as to using any antipsychotic medications 9 (5.7%) men already use these types of medications. For PDE5 inhibitors, 15 (9.5%) men use them. All those were excluded from the study. The total number then dropped to 129 replies out of 158. Eighty-three (64.3%) of the men were 20-29, fifteen (11.6%) were 30-39, seven (5.4%) were 40-49, fifteen (11.6%) were from 50-59, and nine (6.9%) were from 60+ years. The age distribution of the participants is shown in Figure 1.

**Figure 1:** The age distributions of the participants
The second part of the survey used the IIEF-5, the gold standard to assess erectile function. Consequently, 36 (27.9%) of the men rated very high confidence in getting and keeping an erection, 54 (41.9%) rated high confidence, 37 (28.7%) rated moderate. In both low and very low confidence categories, one man (0.8%) reported that they hadn't done intercourse yet. In addition, most men (27.1%) who rated high confidence in keeping an erection were in their twenties (20-29) with a (P-value = 0.025) Figure 2.

**Figure 2:** The confidence of keeping an erection of the participants during intercourse
In case of how hard the erection was during intercourse, most men 65/129 (50.4%) were announced that their erection was always or almost always hard enough during intercourse. Most of those men were in their twenties 47/65 (72.3%) as shown in Figure 2. 42/129 participants (32.6%) answered that they have good erection most of the time while 14 (10.9%) of the men said sometimes, and 3 (2.3%) reported a few times as shown in Figure 3.

Figure 3: The hardness of erections of the participants during intercourse

In respect to the domain of being able to maintain an erection, the bulk of the participants, 48 (37.2%), answered that they could maintain erection most of the time, with the majority of them being aged 20-29 (32 (66.7%)). While 35 (27.1%) maintained their erection almost always or always, 23 (17.8%) were 20-29 years old. 22 (17.1%) stated that they sometimes maintain their erection after penetration, with 11 (8.5%) of them being 20-29 and 6 (4.7%) of them being 30-39 years old. 10 (7.8%) of the participants had maintained their erection a few times, with 2 (1.6%) of them being aged 60 years or older. 9 (7%) said they almost never or never could maintain their erection after penetration, with the majority 6 (4.7%) being also 20-29 years old. 5 (3.9%) of the participants said they had not had intercourse yet. The P-value was found 0.606. Those results are summarized in Figure 4.
Figure 4: The ability to maintain the erections between the participants.

Regarding the question which stated, "During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?" more than half of the participants said that it is not difficult 68 (52.7%) with the bulk (41 (68%)) being 20-29. In comparison, 33 (25.6%) said it is slightly difficult, 13 (10.1%) said it is difficult, 8 (6.2%) said very difficult, and 3 (2.3%) said it was extremely difficult for them to maintain an erection to completion of intercourse. 4 (3.1%) said they hadn’t done it yet. P-value = 0.906, Figure 5.
Regarding the question on how often sexual intercourse is satisfactory, Always or almost always was the most picked answer with 49 (38%) of the total participants. Always having or almost always satisfactory intercourse, with the majority of the 37 (28.7%) being aged 20-29 years old. 42 (32.6%) have satisfied intercourse most of the time, the majority of the 25 (19.4%) being aged 20-29. 18 (14%) of the participants answered with sometimes has satisfied intercourse, with 10 (7.8%) of them aged 20-29, 4 (3.1%) aged 30-39, and 4 (3.1%) aged 50-59. 10 (7.8%) of the participants answered that they almost never or never has satisfied intercourse, with 4 (3.1%) of them aged 20-29, 1 (0.8%) aged 30-39, 1 person (0.8%) aged 40-49, 2 (1.6%) aged 50-59, and 2 (1.6%) aged above 60 years old. 6 (4.7%) of the participants answered that they had satisfied intercourse a few times, 3 (2.3%) aged 20-29 years old. The P-value is 0.347, which is insignificant, Figure 6.
Figure 6: The degree of intercourse satisfaction of the participants.
Discussion

The prevalence of erectile dysfunction was shown in a study done by Drogo et al. in 2019 [7], that erectile dysfunction in any of its forms had a prevalence of 52% in men aged 40-70 years. It also mentioned in the same study that aging can be a cause of ED, but that was associated with having multiple risk factors accompanied by a poor lifestyle, such as vascular diseases and diabetes [2]. Back to the risk factor of interest in our study, keeping an erection was reported as a very sensitive task during a sexual experience. Many factors were found contributing to being unable to maintain the erection [7]. Predominately the psychological aspects was observed to play the cornerstone of having erectile dysfunction [7]. Anxiety and Depression, and low self-esteem also had a higher ratio to promote this life struggle [7,8]. Hyland and his colleagues in 2020 [9] conducted a study concerned with the rate of anxiety and depression after a nationwide quarantine in Ireland. They found the circumstances of the quarantine have a strong association with the development of anxiety and depression. Their study was structured around the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) questionnaires. They concluded that the prevalence of depression in the general population to be 22.8% and GAD to be 20.1% [9]. Our study demonstrated that men did not show a connection between quarantine and stress concerning ED. However, there are certain limitations, including the sample size that was not big enough to reflect the general population and the type of questionnaire which did not specifically ask about stress.

In a systemic review [10] conducted in 2020 reviewing several studies that measured psychiatric symptoms or morbidities associated with COVID-19 among infected and non-infected groups, the authors found that psychiatric symptoms among COVID-19 patients are psychiatric symptoms higher than the general population, especially depression and other mood disorders. They concluded that the community's mental health is affected by the pandemic compared to before the outbreak [10]. In another study [11] conducted in China and was also concerned with the effect of nationwide quarantine on the level of anxiety during the COVID-19 outbreak, the authors found a positive relationship between the home quarantine and the level of anxiety among the populations. From a total of 992 valid responses, clinically significant symptoms of anxiety were observed in 9.58%. The specific groups that showed anxiety were adolescents younger than 18 years old, those with low educational levels, patients of chronic diseases, and the frontline medical personnel. More importantly, this study showed that people who underwent different forms of quarantine showed different levels of anxiety, as respondents who underwent centralized quarantine had higher levels of anxiety than other respondents who experienced other forms of quarantine [11]. Aghighi et al. in 2015 [4] was concerned with the psychological determinants of erectile dysfunction among middle-aged men; they found in their study that the psychological factors affect young adults more
than middle-aged men. According to their result, middle-aged men have better coping mechanisms, are mature, and are more cognitively developed. In contrast, young adults are lesser in that development area, but psychological problems are still an issue in both categories. Another study showed a stress cycle where stress caused by ED pools into other aspects of life, which can ultimately return to exacerbate ED [6]. Before doing our study, we had a similar hypothesis yet, all of the participants in our study did not have any psychological problems. We observed that young adults in the COVID-19 quarantine period have been facing the most stress because they are losing jobs more easily and found to have more psychological disturbances than middle-aged men. A retrospective study [12] was conducted across Turkey during the Covid 19 period showed a significantly high increase in the diagnosis of sexual health diseases and erectile dysfunction in comparison to the pre-COVID-19 period. 721 out of 4955 in the study were diagnosed with andrological diseases with significantly more common inpatient during the COVID-19 period in comparison with the pre-COVID-19 period 17% and 13.2% respectively. Diagnosis of ED was also significantly higher in the COVID 19 period than the pre-COVID 19 period with 8.7% and 6.6%, respectively [12]. In a study aimed at exploring the mechanisms involved in the development of erectile dysfunction in COVID-19 survivors [13], the authors clearly stated that experiencing some degree of psychological trauma following quarantine, isolation, social distancing, loss of relatives and friends, as well as medical and financial consequences, would lead to a decline in both gender’s sexual desire and frequency and also, exacerbate pre-existing sexual dysfunction as sexual desire is closely related to mental and psychological health. Lastly, they advise using psychological interventions to support patients who develop sexual dysfunction during this pandemic [13]. We have expected quarantine to have similar effects on male potency in Saudi Arabia as it had in other countries worldwide. But in our study, the results did not correlate with the findings of the previously mentioned studies. We found no significant changes in participants' potency between the pre and post-COVID 19 periods. The low number of participants can explain this or due to quarantine policy during the COVID 19 period are not strict as those in other countries, or it may be due to the financial and social disturbances during COVID 19 period in our country is not so severe as those in other countries. Unfortunately, certain limitations were faced during this study. The first difficulty was in spreading the questionnaire to as many people as possible. Even with adequate distribution, another problem arose, social desirability bias. It is believed that some participants answer the questions based on how society may view a certain manner as "good or bad." In addition, talking about sex and related topics is difficult in an Islamic society. As a result, people tend to avoid answering the questionnaire. Our study can have numerous applications in real life. An important one is knowing that quarantine or any extended period of time that can result in increased stress, depression, or any psychological issue should be avoided. If it can’t be avoided, then certain coping mechanisms should be taken into consideration.
Conclusion

In conclusion, our results did not show any signs of impotence due to home quarantine during COVID-19 period, considering that most of the sample subjects included young adults (20-29 years of age). Even without significance, there was a small fraction of the sample that showed in fact that quarantine affected their potency. Further studies are warranted for more robust and conclusive results.

List of Abbreviations:

ED Erectile dysfunction
GAD-7 Generalized Anxiety Disorder-7
PHQ-9 Patient Health Questionnaire-9
SPSS Statistical Package for the Social Sciences

Conflict of Interests:

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding:

None.

Consent to Participate:

Informed consent was obtained from all the participants.

Ethical Approval: The ethical approval for this study was obtained from the IRB committee of Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia (IRB-UGS-2021-01-008 dated January 20,2021)
References:

   https://doi.org/10.1038/nrdp.2016.3


   https://doi.org/10.1016/j.urology.2019.09.019

   https://doi.org/10.1038/ijir.2014.34

   https://doi.org/10.1016/j.biopha.2019.01.046

   https://doi.org/10.1111/jsm.12374

   https://doi.org/10.1111/j.1743-6109.2009.01656.x
https://doi.org/10.2190/NHV6-3DYB-X51G-4BVM

https://doi.org/10.1111/acps.13219

https://doi.org/10.1016/j.bbi.2020.05.048

https://doi.org/10.1002/brb3.1938

https://doi.org/10.1016/j.esxm.2020.100292

https://doi.org/10.1007/s40618-020-01350-1