



Love at the time of the Covid-19 pandemic: preliminary results of an online survey conducted during the quarantine in Italy

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To the Editor:

The ongoing pandemic of the Coronavirus infection (COVID-19) and its restrictive measures may lead to widespread fear, anxiety and panic, which can escalate into further negative psychological reactions, including adjustment disorder, depression and changes in sexual behaviour [1]. Clinical depression is often associated with a reduction in sexual interest and sexual response, an association that may be more marked in women than in men [2].

In this report, we present the preliminary results of an online survey conducted during the quarantine in Italy. We aimed to assess the impact of the quarantine due to COVID-19 on psychological (in particular anxiety and depression symptoms) and sexual well-being. The sample was drawn through posts on social networks (Instagram® and Facebook®) and the survey was administered online through Google Forms. Participants completed the survey with questions about their sexual habits they had before and during the quarantine (Table 1). The Beck Depression

Inventory (BDI-II) [3] in its Italian validated version [4] and the Beck Anxiety Inventory (BAI) [5] in the Italian validated version [4] were used. Moreover, sexual satisfaction was evaluated by asking the question “Overall, how satisfied are you with your sex life during quarantine on a scale ranging from 1 (not at all satisfied) to 5 (extremely satisfied)?” and people were asked “Have you been quarantined as positive for COVID-19?”. The survey also investigated items about autoerotism during and before quarantine. Supplementary Table 1 shows the questions of the survey.

A total of 1515 respondents were involved in the study. None of the participants were quarantined as positive for COVID-19. Median age was 21.0 (interquartile range [IQR]: 19.0–25.0), median BDI score was 10.0 (IQR: 5.0–16.0) and median BAI score was 11.0 (IQR: 6.0–20.0). Table 1 shows sexual activity domains before and during the quarantine. Moreover, 602 (39.74%) respondents answered that quarantine increased autoerotism more than before. Although only 7.46% of the participants reported “no satisfaction” before the quarantine, 53.53% complained about that during the quarantine ($p < 0.01$). We found that women had greater depression (BDI-male: 8.0 [IQR 4.0–13.0]; BDI-female: 11.0 [IQR 6.0–17.0]; $p < 0.01$) and anxiety respect to male (BAI-male: 7.0 [IQR 3.0–14.0]; BAI-female 13.0 [IQR 7.0–23.0]; $p < 0.01$). At the multivariate logistic regression analysis, we found that age (odds ratio [OR]: 0.96; $p < 0.01$) and BDI (OR: 1.07; $p < 0.01$) in male and age (OR: 0.96; $p < 0.01$), BDI (OR: 1.03; $p < 0.01$) and “knowing people positive at COVID” (OR: 0.78; 0.05) in women were significant predictors of sexual dissatisfaction.

We interestingly found that more than 40% of the respondents reported an increased sexual desire during the quarantine, compared to baseline. However, the reported enhanced sex arousal did not translate into a higher

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Table 1 Sexual activity domains before and during quarantine.

	<i>p</i> value
Sexual intercourse during quarantine, <i>n</i> (%)	
Yes	239 (15.78)
No	1276 (84.22)
Did you have intercourse before quarantine? <i>n</i> (%)	
Yes	284 (18.75)
No	1231 (81.25)
Number of intercourses, <i>n</i> (%)	
0	1276 (84.22)
1 per week	157 (10.36)
2 per week	50 (3.30)
>2 per week	32 (2.11)
Sexual desire during quarantine, <i>n</i> (%)	
No sexual desire	241 (15.91)
Less than before	64 (4.22)
Equal to before	594 (39.21)
More than before	616 (40.66)
Do you practice autoerotism? <i>n</i> (%)	
Yes	1195 (78.88)
No	320 (21.12)
How did autoerotism change during quarantine? <i>n</i> (%)	
No autoerotism	320 (21.12)
Less than before	147 (9.70)
Equal	446 (29.44)
More than before	602 (39.74)
Do you see porn movies? <i>n</i> (%)	
Yes	921 (60.79)
No	594 (39.21)
Did you see porn movies before quarantine? <i>N</i> (%)	
Yes	986 (65.08)
No	529 (34.92)
Sexual satisfaction during quarantine, <i>n</i> (%)	
No satisfaction	811 (53.53)
Mild satisfied	369 (24.36)
Equally satisfied	171 (11.29)
Moderate satisfied	107 (7.06)
Extremely satisfied	57 (3.76)
Sexual satisfaction before quarantine, <i>n</i> (%)	
No satisfaction	113 (7.46)
Mild satisfied	149 (9.83)
Equally satisfied	277 (18.28)
Moderate satisfied	530 (34.98)
Extremely satisfied	446 (29.44)

^aChi square test

frequency of sexual intercourse (18.75% and 15.78% before and during quarantine, respectively). Moreover, sexual satisfaction significantly decreased during the quarantine,

with more than half of the respondents describing a complete absence of sexual satisfaction, compared with only 7.46% of people before the lockdown. These results can be partly explained by a self-reported increase of autoerotism in 40% of the participants and a high prevalence of pornography use between the responders; in fact, it is widely accepted that pornography use is associated with decreased sexual satisfaction [6].

The limitations of this online survey include the sampling process, the lack of validated questionnaires about sexual activity and the recall bias for questions assessing sexual function before the quarantine. However, this survey is one of the few reports evaluating the impact of quarantine on sexuality of males and females. We found that lower age and higher depression score were significant predictors of sexual dissatisfaction in both genders. Interestingly, we found that women who knew patients positive for COVID-19 were at a reduced risk of sexual satisfaction, may be due to the mitigation of stress secondary to a better knowledge of the disease itself. Further analyses and longer follow-up after the quarantine are required in order to confirm these preliminary results and to investigate different changes in sexual health.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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