

# Time Course of Psychological Impact for Male: Discovered in COVID-19 Cases

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## Article

**Keywords:** COVID-19, PTSD, gender differences, delayed medical visit

**Posted Date:** July 9th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-39067/v1>

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## **Abstract**

The outbreak of Coronavirus Disease 2019 (COVID-19) pandemic is leading to widespread emotional distress such as post-traumatic stress disorder (PTSD). Our objective was to investigate the gender differences in PTSD symptoms (PTSS) among COVID-19 symptomatic patients over time caused by delayed medical visit. We investigated 258 confirmed cases of COVID-19 from two designated hospitals in Wuhan from 26 February to 16 March. PTSS was measured by PTSD Checklist for DSM-5 (PCL-5). Demographics and time interval from symptom onset to the first medical visit were also collected. The results show that 48 of 258 participants (18.6 %) met the criteria of PTSD symptoms. Males had significantly higher PCL-5 scores when time interval was 7 days or more compared with less than 7 days (22.18 vs. 15.11,  $t=-2.280$ ,  $P<0.05$ ), whereas no such significant time effect was found in females, regardless of the severity of the disease. The present study emphasizes the significant effect of time course on PTSS only in male. It is suggested that policy makers and health services should pay more attention to PTSD in male, and call on male to seek medical treatment as soon as developing symptoms of coronavirus disease if local medical conditions permitted.

## **Main Text**

The Coronavirus Disease 2019 (COVID-19) pandemic is a major health crisis affecting several nations, with over 8,525,042 cases and 456,973 confirmed deaths reported to date, which produces multitudinous severe illnesses to overwhelm health care infrastructure. At the same time, scholars have repeatedly stressed the importance of allocation of scarce medical resources in the time of COVID-19<sup>1</sup>. Besides, people are advocated to quarantine and self-isolation at home around the world<sup>2</sup>, which could potentially cause delays in seeking medical visit.

Major stressors relating to COVID-19, including severe shortages of medical resources, imposition of unfamiliar public health measures such as quarantine that infringe on personal freedoms, and emerging financial losses, will undoubtedly lead to widespread emotional distress and increased risk for psychiatric illness.<sup>3</sup> Thereinto, post-traumatic stress disorder (PTSD) is a common consequence of COVID-19. Moreover, it is regarded as the second tsunami of the SARS-Cov2 pandemic.<sup>4</sup>

Our previous study showed that the prevalence of PTSD symptoms (PTSS) was 7% in the hardest-hit areas of China one month after the COVID-19 outbreak, and female had significantly higher PTSS than male.<sup>5</sup> But it is worth noting that several evidences have shown a higher critical and mortality rates in males with COVID-19<sup>6</sup>. Meanwhile, several previous studies proved that women had a higher percentage of medical visit and they tended to use preventive and diagnostic services more frequently, while male made greater use of emergency services<sup>7,8</sup>.

To further explore gender differences in PTSS of COVID-19 symptomatic patients over time caused by delayed medical visit, we investigated 258 confirmed cases of COVID-19 from two designated hospitals in Wuhan from 26 February to 16 March. Among them, 122 were males (47.3%) and 136 were females

(52.7%). PTSS was measured by PTSD Checklist for DSM-5 (PCL-5). Demographics and time interval from symptom onset to the first medical visit were also collected.

The results show that 48 of 258 participants (18.6%) met the criteria of PTSD symptoms, 30 (62.5%) of which were females. Of the 20 PTSD symptoms, 10 had an incidence of more than 50%, and 6 had a meaningful incidence with moderately or higher scores over 30%. The first four most meaningful symptoms are trouble falling or staying sleep (46.9%), feeling very upset when something reminded about the epidemic situation (33.7%), repeated, disturbing, and unwanted memories (32.6%), and trouble remembering important parts (32.6%). The specific percentage for each symptom is shown in **Fig. 1**.

Among all participants, the median time interval from symptom onset to the first medical visit is 3 days, and the specific distribution is displayed in **Fig. 2a**. The scores of PCL-5 and four Criterions changes with days from symptom onset to first medical in male and female are shown in **Fig. 2b**. Males had significantly higher PCL-5 scores when time interval was 7 days or more compared with less than 7 days (22.18 vs. 15.11,  $t=-2.280$ ,  $P < 0.05$ ), whereas no such significant time effect was found in females, regardless of the severity of the disease (see **Fig. 2c**). Women showed more PTSD symptoms than male (20.91 vs. 15.11,  $t=-2.902$ ,  $P < 0.05$ ) when time interval less than 7 days. But when the time interval was more than 7 days, the significant gender difference was disappeared.

The current results are consistent with previous studies describing higher prevalence of PTSS related to pandemic for female than male<sup>5</sup>, but we have further findings that male developed more severe PTSD symptoms than female when they delay seeking medical visit. The possible explanation for this result is that when male developed virus-like symptoms, they are initially ignored and do not seek medical help. Then after the symptoms last for a long time and become more severe, anxiety increases rapidly, leading to a sharp rise in PTSD symptoms.

Experience from past outbreaks shows the importance of incorporating a gender analysis into preparedness and response efforts to improve the effectiveness of health interventions and promote gender and health equity goals<sup>9</sup>. What's more, the present study emphasizes the significant effect of time course on PTSS in male. It is suggested that policy makers and health services should pay more attention to PTSD in male, and call on male to seek medical treatment as soon as developing symptoms of coronavirus disease if local medical conditions permitted.

## Declarations

The study "Time Course of Psychological Impact for Male: Discovered in COVID-19 Cases" was done after agreement from the ethics committees of Naval Medical University and with the patients' informed consent.

## Funding

No funding

## Authors' contributions

NL, BY, XP, ZS contributed to the writing of this article and the statistical analysis of this article, who are co-first authors, WL and YB leaded the whole study, including putting forward this study, carrying out the study, and was the co-corresponding author. BY, XT, YB contributed to perform the investigation and collection of all data.

## Acknowledgements

The authors would like to acknowledge the volunteers who participated in the study and Yanpu Jia & Lili Wu for revising manuscript and language polishing.

### Ethics approval and consent to participate

This study was approved by the ethics committees of Naval Medical University.

### Conflicts of interest

The authors declare that they have no conflicts of interest.

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## Figures

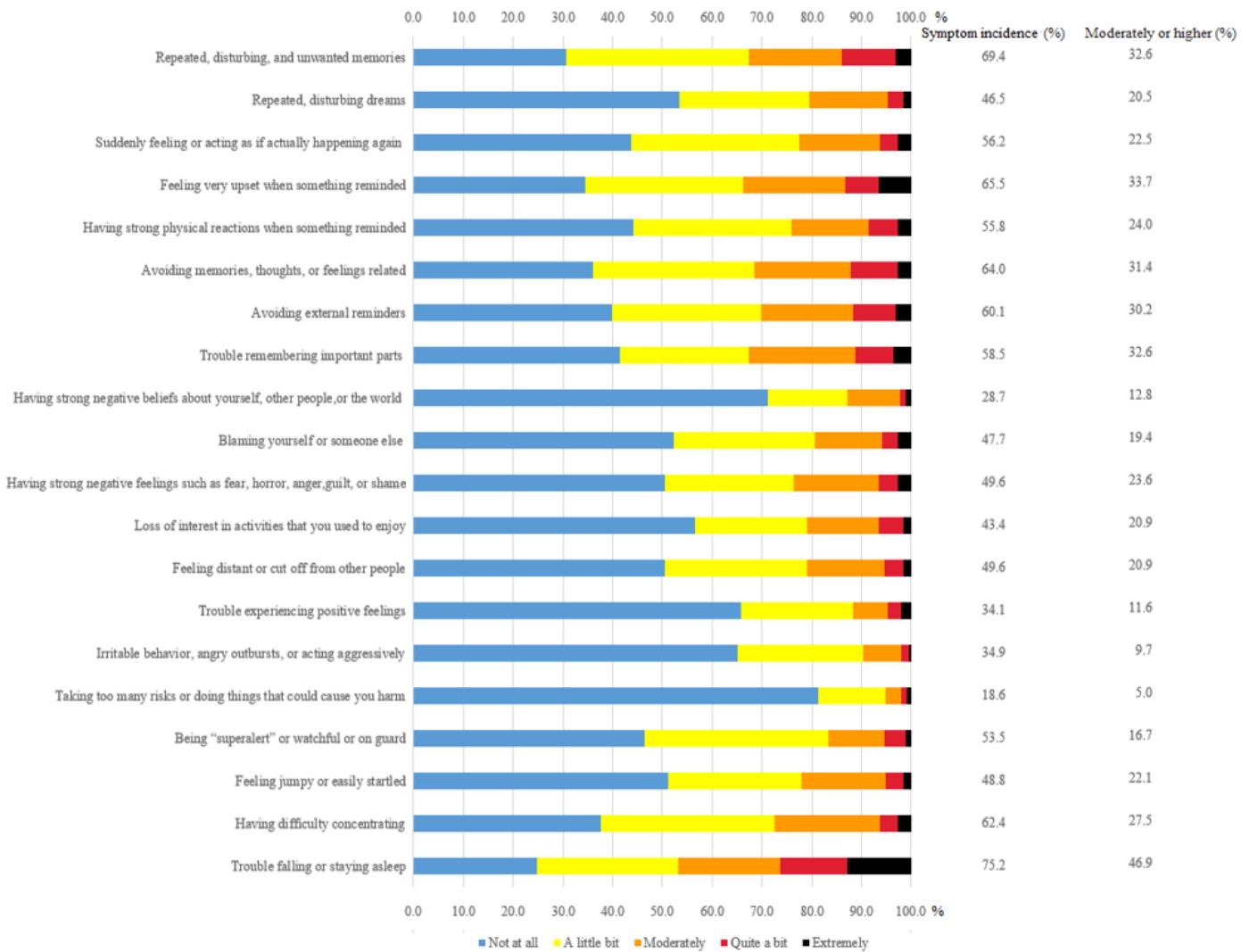


Figure 1

Likert scores on each item of the PCL-5 of 258 patients with COVID-19.

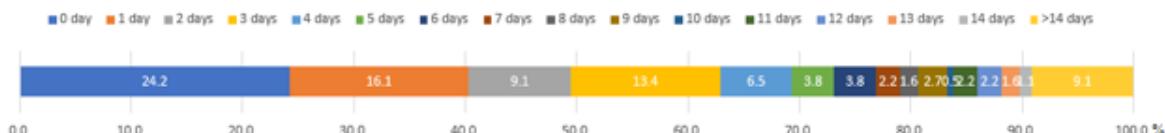


Figure 2a: Percentage of days from symptom onset to First Medical Visit in all patients

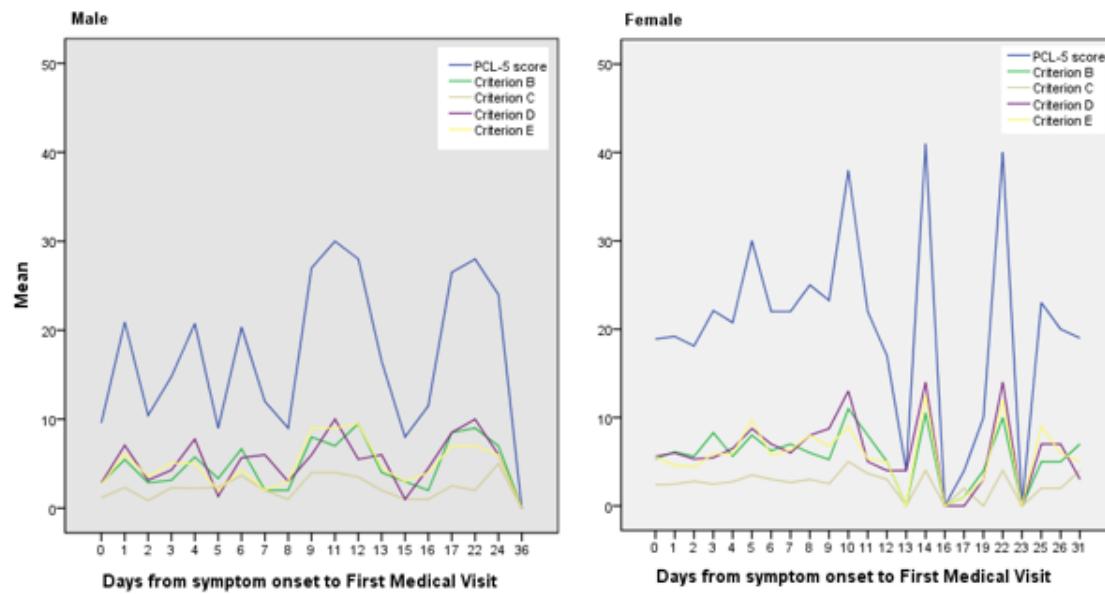


Figure 2b: Scores of PCL-5 and four Criterions changes with days from symptom onset to First Medical Visit in male and female.

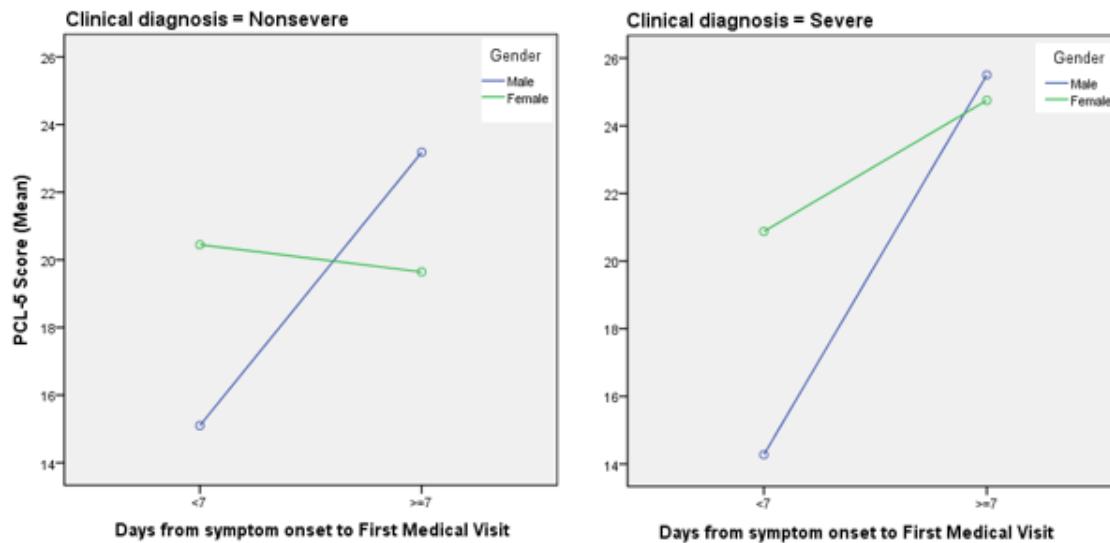


Figure 2c: Gender differences in the effect of First Medical Visit time on PCL-5 scores

## Figure 2

Captions in Figure.