

# Review of: "Psycho-Emotional Impact of the First Wave of the COVID-19 Pandemic in Health Care Workers of a Large COVID-19 European Hospital"

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Potential competing interests: No potential competing interests to declare.

Thank you for the opportunity to review this manuscript. Overall, this is a good attempt to understand the mental health of healthcare workers in Italy. However, I have major concerns regarding statistical analysis and the reliability of the tools used in the study.

## INTRODUCTION

The introductory section provided a useful overview of mental health in the general population and among healthcare workers. The study did not consider several variables mentioned in the introductory section despite pointing to them as predictors and mediators of psychological distress. This is a missed opportunity to make the present study more robust. In addition, the need for the study was not justified. There is a need to provide a strong justification for the study.

## METHODS

**Subjects and methods:** the author assumed this study is retrospective: "This retrospective observational study...". However, I do not think this is a retrospective study because participants were recruited much later after the pandemic. Asking participants to recall psycho-emotional events during the pandemic does not mean the study is retrospective. I suggest "retrospective" is removed from the study description.

There is a need to state when this present study obtained data from the participants.

**Ethical approval:** the authors did not see ethical approval: "The study adhered to the Ethical Principles of the Helsinki Declaration, whereas approval by the local Ethics Committee was not necessary....". It is expected that ethical approval is sought before embarking on a study, particularly a study that involves the mental health of participants. Stating that Helsinki Declaration was followed does not replace a review from an ethical committee.

**Assessment tool:** there is a need to report the tools' reliability to help readers know if the results are reliable. Many authors go ahead with using an unreliable tool in their setting, which is inappropriate. Even if one or more of the tools is not reliable, it can be reported as a limitation of the study. But the reliability of the tools should be reported.

The description of the sociodemographic characteristics was ignored in the methodology. The method section is expected to be detailed so that it can stand alone. I checked the tables to see the sociodemographic characteristics selected for the

study. However, the authors did not justify why only four variables were selected, despite listing several variables in the introductory section. Previous studies have reported important variables influencing poor mental health among healthcare workers, such as years of experience, number of children, family members who contracted COVID, etc.

(see <https://sajp.org.za/index.php/sajp/article/view/1904>; <https://pubmed.ncbi.nlm.nih.gov/32751624/>). In addition, we do not know how much variance the sociodemographic data explained the outcome variables. This should be reported. Generally, the authors missed the opportunity to include salient independent variables that may predict the participants' psycho-emotional status.

**Statistical methods:** It was nice to see that the authors checked for the normality of continuous variables. However, there was no report on the normality of the continuous variables, which ideally should inform the set of bivariate and multivariate analyses conducted. The author stated that a Pearson's correlation,  $\chi^2$  and Fisher's exact test were conducted. There is evidence of Chi-square/Fishers but no evidence of Pearson's correlation. It is recommended that Pearson's correlation is removed from the statement.

On the other hand, the authors should run a correlation between stress level (DASS-Stress) and perceived stress level (PSS) since both variables are available. This will show if there is an agreement between perceived and actual stress. There is a concern about the Chi-square test analysis; details are in the result section below.

Regarding the regression analysis, five "nominal regressions" were said to have been performed. "Nominal regression" is not a common word to use. The word nominal implies that the categorical independent variables were tested as predictors against an outcome variable. If the outcome variables (psycho-emotional variables) were classified, then a binary or multinomial regression should be conducted. Linear regression should be conducted if the outcome variable is continuous. So, what type of regression was performed? Binary regression, multinomial, or linear regression? This should be stated in the method.

## RESULTS

About 2500 emails were sent to recruit participants, and 1229 completed the questionnaire. This means the response rate was 49.2%. This should be reported.

**Table 1:** Table 1 describes the demography of the participants. The age category is not evenly distributed. For instance, 18-29 gives a range of 11, 30-44 gives a range of 14, and 45-54 gives a range of 9. The age categorical should be classified such that it reflects constant interval/range. Also, there is a need to show the mean/median age for the total population, males and females.

What does the "aa" after the age categories imply?

**Table 2:** I was wondering why there was a need to test the association between gender and other demography data. An explanation would be helpful since this was not an objective.

The meaning of “M” and “F” should be interpreted below the table for clarity, and “Both” should change to “Whole sample” to be consistent with the earlier table. Preferable, “Total” should be used.

There was a test of association between gender (male/female) and the psycho-emotional variables. Other sociodemographic variables were not tested with the psycho-emotional variables. Any explanation for the omission? Of great concern is the choice of running a Chi-square test using the options of the psycho-emotional tools. One would expect a t-test, ANOVA (if the tool is normally distributed; no information on normalcy), or Man Whitney U and Kruskal-Wallis if the score is skewed. I am afraid this may not make meaning statistical sense.

**Table 4:** A multinomial regression analysis was conducted to see the predictors of the psycho-emotional variables. Each model included more variables than just gender in the Chi-square test. Why were age and gender alone in the DASS Depression and DASS stress model; age, gender, and assistance to patients in the DASS Anxiety model IES-R; and age, past COVID, and gender only in the PSS model? If a statistical procedure led to the omission, then this should be reported in the methodology for clarity.

The “M” and “F” in the PSS model should be written in full.

## DISCUSSION

There are statistical issues that may have impacted the findings of this study. Therefore, issues must be addressed before looking at the discussion because a run of analysis will change part of the result and can affect the direction of the discussion.