

Effects of an Educational Intervention on Prevention Compliance

and Anxiety Levels During the COVID-19 Pandemic

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Abstract

Previous research has failed to address the importance of practicing preventive measures during a pandemic particularly in the population of health care students (Hasan et al., 2018). While research has assessed the psychological impact of the COVID-19 pandemic, studies have failed to intervene in the mental health of this population (Wang et al., 2020). This study examined the impact of an educational intervention about the background, transmission, and preventive measures of the COVID-19 pandemic along with anxiety reduction tools on the likelihood of prevention compliance and decrease in anxiety of medical professional graduate students. Two pre-test and post-test quantitative test questions were analyzed using a two-tailed paired samples t-test for each question. Question seven of the pre-test and post-test survey represented the current status and future likelihood of prevention compliance, which was composed of six preventive measures adapted from the National University of Singapore Questionnaire on COVID-19 (Wang et al., 2020). Question eight of the pre-test and post-test survey represented anxiety level, which was composed of the seven components of the Generalized Anxiety Disorder-7 (GAD-7) questionnaire pertaining to COVID-19 (Spitzer et al., 2006). Statistical significance was found for each two-tailed paired samples t-test, revealing that medical professional graduate students were **more likely to comply with preventive measures** and **experience less anxiety** following an effective educational intervention.



Figure 1. COVID-19 preventive measures are visualized in the picture above (Covid Preventive Measures - Google Search, n.d.).

Background & Purpose

The coronavirus disease, also known as COVID-19, is a novel virus never before seen in humans that resulted in a global pandemic (CDC, 2020). While research has assessed the psychological impact of the COVID-19 pandemic, it has failed to address the importance of prevention compliance with the purpose of mental health intervention in health care students (Hasan et al., 2018; Wang et al., 2020). **The purpose of this study was to educate health care students and utilize anxiety reduction tools with a goal of increasing the likelihood of prevention compliance and alleviating anxiety during the COVID-19 pandemic.**

Description & Methodology

This study used a quasi-experimental pretest-posttest research design and included medical professional graduate and nursing students enrolled at a university in Arkansas.

There were 33 participants recruited via online administration through email access from May to June 2020. Questions for hypotheses were adapted from the National University of Singapore Questionnaire on COVID-19 and the Generalized Anxiety Disorder-7 (GAD-7) questionnaire (Spitzer et al., 2006; Wang et al., 2020).

Description & Methodology (cont.)

Participants completed:

- **Demographics information** – answered 11 questions pertaining to gender, age, race, current state of residence, graduate or nursing program enrollment, religiosity, political stance, marital status, parental status, household size, and anxiety diagnosis.
- **Personal history** – answered four questions pertaining to symptoms, physical health status, contact history, and source information.
- **Pre-test survey** – answered eight questions pertaining to a basic understanding of COVID-19, current status of prevention compliance, and anxiety level.
- **Educational intervention** – received an educational intervention between pre-test and post-test survey in the form of a pre-recorded YouTube video with PowerPoint and audio overlay about the background, transmission, and preventive measures of the COVID-19 pandemic.
- **Post-test survey** – answered eight questions pertaining to a basic understanding of COVID-19, future likelihood of prevention compliance, and anxiety level.

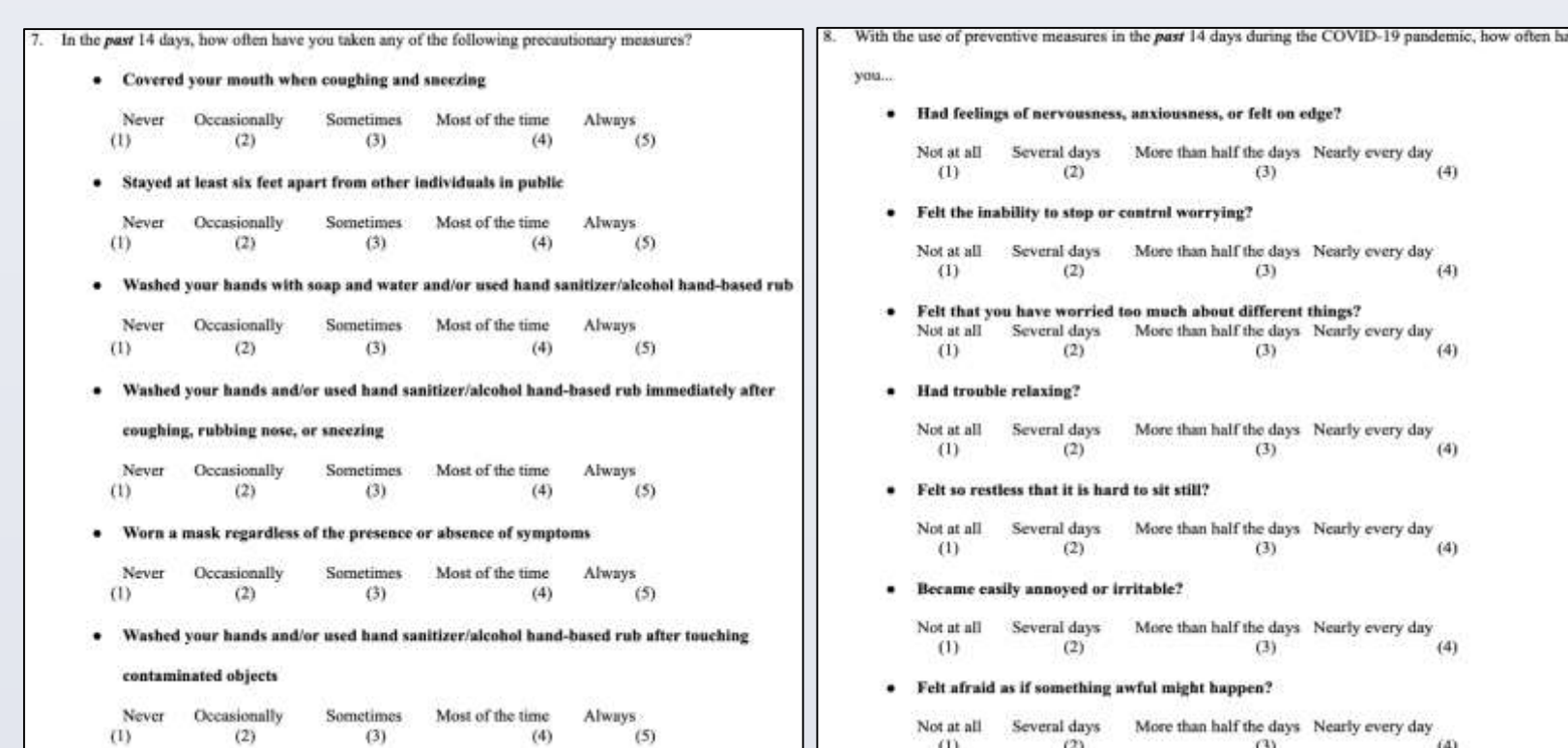


Figure 2. Pre-test quantitative test questions pertaining to precautionary measures and anxiety components are visualized above.

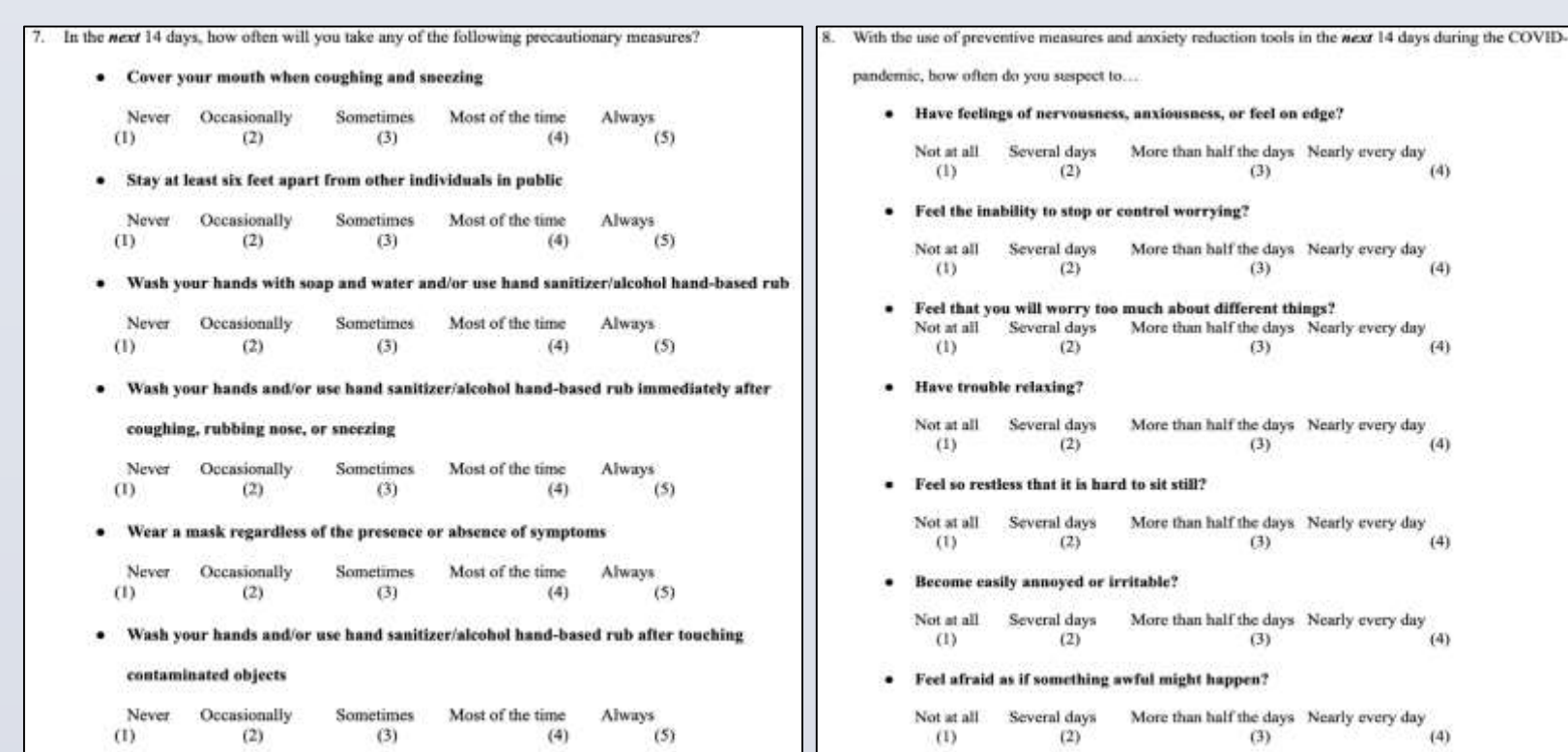


Figure 3. Post-test quantitative test questions pertaining to precautionary measures and anxiety components are visualized above.

Faculty reviewed the survey for appropriate content and validity before distribution. The project was reviewed by the university's Institutional Review Board, receiving exemption (proposal #202-053).

Data was converted from Google Forms into Microsoft Excel, and surveys were made anonymous with a Google Forms setting. Statistical measures and two different two-tailed paired samples t-tests for items seven and eight of the pre-test and post-test surveys were analyzed.

Results

The research hypotheses of this study focused on an educational intervention about the background, transmission, and preventive measures of the COVID-19 pandemic having a significant increase in the likelihood of prevention compliance and significant decrease in the anxiety of medical professional graduate students and nursing students at a university in central Arkansas.

Results of both hypotheses in this study were analyzed using two two-tailed paired samples t-tests based on an alpha level of 0.05. Statistical analysis revealed that **health care students were significantly more likely to comply with preventive measures** ($p < 0.001$) and **have a significant decrease in anxiety following an educational intervention** ($p = 0.001$).

Results (cont.)

Results of Mean Prevention Compliance Scores	
Statistic	Value
N	33
Mean pre-test score	24.78
Mean post-test score	27.19
Difference in means	-2.41
SD	2.56
t	-5.31
df	32
p (two-tailed)	8.833E-06

Table 1. This table demonstrates the results of mean prevention compliance scores during the COVID-19 pandemic that were analyzed using a two-tailed paired samples t-test.

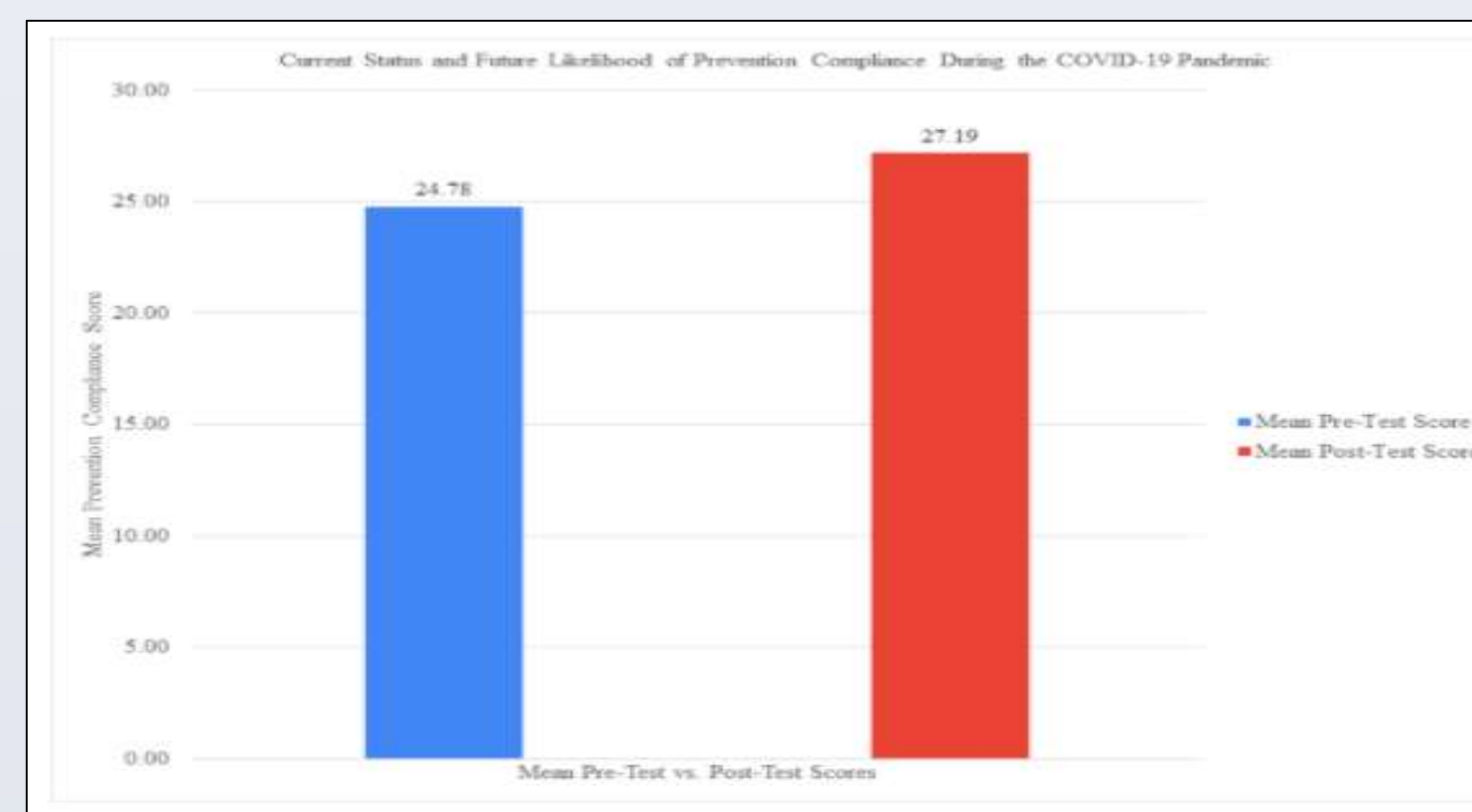


Figure 4. This figure demonstrates the significant difference in the mean pre-test and post-test prevention compliance scores obtained during the COVID-19 pandemic.

Results of Mean Anxiety Scores	
Statistic	Value
N	33
Mean pre-test score	6.09
Mean post-test score	4.25
Difference in means	1.84
SD	2.94
t	3.55
df	32
p (two-tailed)	0.001

Table 2. This table demonstrates the results of the mean anxiety scores during the COVID-19 pandemic that were analyzed using a two-tailed paired samples t-test.

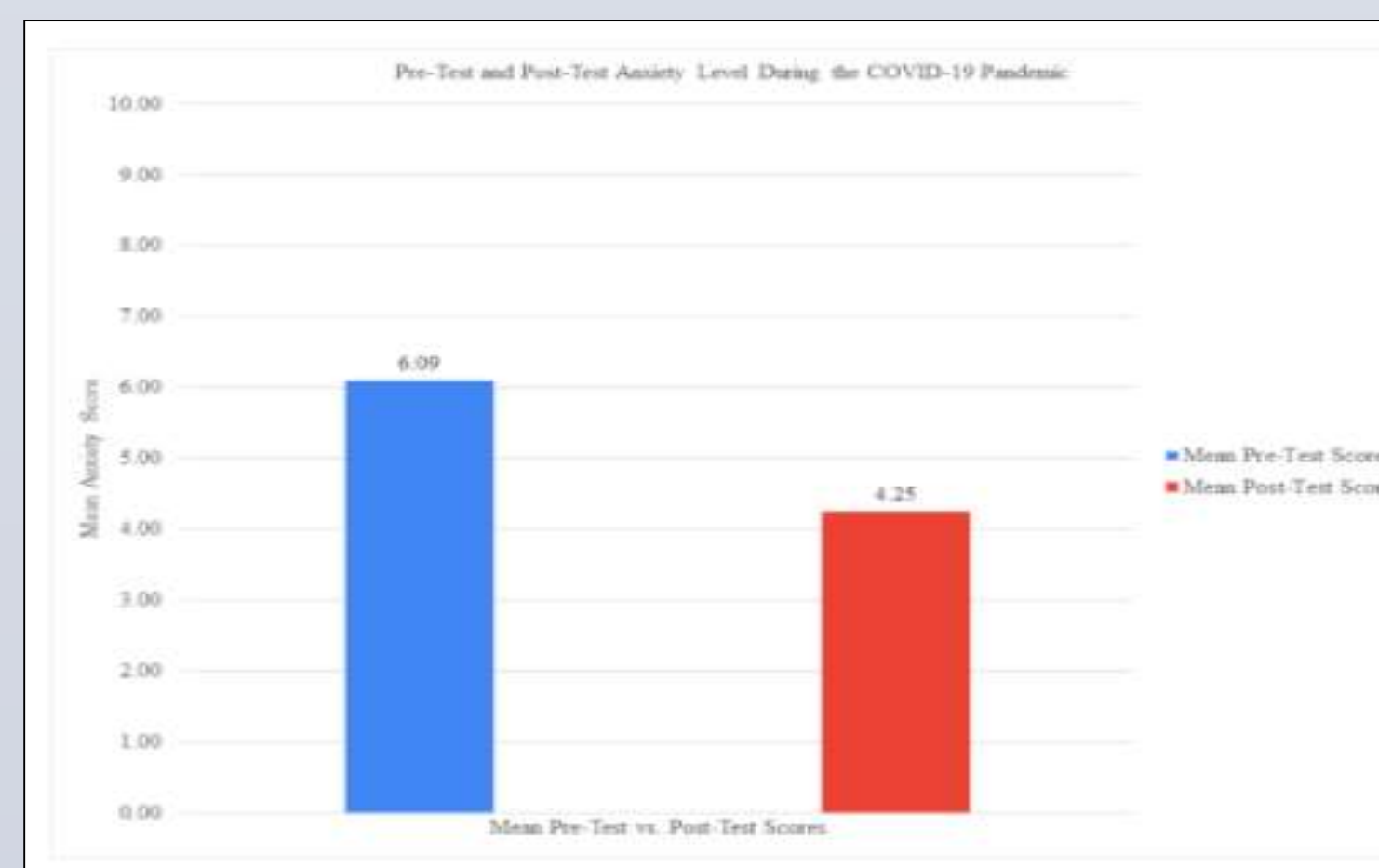


Figure 5. This figure demonstrates the significant difference in the mean pre-test and post-test anxiety scores obtained during the COVID-19 pandemic.

Discussion

Even though this was not a main hypothesis for this study, it was interesting to find that most participants were religious (97%) and somewhat conservative (39.4%). Religiosity and conservatism have been found to have an indirect relation with trust in science (Plohl & Musil, 2020). However, these findings are inconsistent, as these qualities have been associated with a lower level of prevention compliance not seen in the sample population of this study (Plohl & Musil, 2020). Future studies warrant further consideration of these qualitative variables.

The findings of this study indicate that **health care students are more willing to comply with preventive measures and are less anxious when provided with an educational intervention that includes both preventive measures and anxiety reduction tools to be used during the COVID-19 pandemic.**

Limitations of this research include:

- **Time** – had to be developed and administered over the course of two months instead of almost a year.
- **Smaller sample size** – concurrent administration with final exams and online administration of the educational intervention and surveys.
- **Access to information** – new information being released daily about the COVID-19 pandemic.

Conclusions

Overall, this study was effective in targeting prevention compliance and anxiety level during the COVID-19 pandemic. Future studies could focus on gaining wider participant demographics, administering studies in-person, or completing a longitudinal study. This study has the potential for expansion in the health care arena, including medical students, pharmacy students, and practicing licensed health care professionals, among others.

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