What is the Relationship Between Mental Illness (Anxiety/Depression) and Smoking, Drinking, and Sleeping Behaviors Among Women Who are Living Through the COVID-19 Pandemic?

Kelly Hoy, MSW
Department of Social Work

Capstone Research Advisor:
Dr. Erica Lizano

ABSTRACT

The COVID-19 pandemic which hit the globe in late 2019, brought the world to a halt, therefore the significance of this study to the field of social work is germane. Once more, limited research has been collected on the impact of COVID-19 on mental health outcomes and substance abuse among women during quarantine. The present study aimed to examine the relationship between mental illness (anxiety/depression) and smoking, drinking, and sleep among women who are living through the COVID-19 pandemic. The study was a secondary cross-sectional web-based survey data gathered via the Patient Health Questionnaire-4 (PHQ-4); stress adapted Impact of Event Scale-6 (IES-6). Data collection utilized a standardized questionnaire administered via social media through a self administered online survey. The present study utilized the survey data from a sample of 3,688 female participants from the U.S. The age of the participants in the study ranged from 18 to 80 years. To investigate the relationship between the independent variables of mental illness (e.g. anxiety/depression), and the dependent variables of smoking, drinking, and sleeping behaviors, a series of Kruskal-Wallis H-tests were conducted.

INTRODUCTION

Significance of the Study
- The significance of this study to the field of social work, is to understand the complex interplay of anxiety/depression and how coping mechanisms manifest into substance abuse, among women living through unprecedented crisis to allow for better interventions to serve them.

Purpose of the Research
- The purpose of this study is to examine the current body of research and advance the current understanding of co-occurring mental health disorders and substance abuse behaviors among women, during a pandemic.

Research Question
- What is the relationship between mental illness (anxiety/depression) and smoking, drinking, and sleeping behaviors among women who are living through the COVID-19 pandemic?

Hypothesis
- Researchers hypothesized that greater mental illness leads to more smoking, more drinking, and more sleep among women who are living through the COVID-19 pandemic.

LITERATURE REVIEW

- The breadth of research conducted focuses on the relationship between mental illness concurrent with substance abuse behaviors during crisis.
- The Ecological System (e.g. Eco-system) framework was implemented to understand the crux of co-occurring mental health diagnosis, the intersection of substance abuse, during any type of crisis, epidemic, economic instability or locus of time.
- Likewise, the Transactional Coping Theory was utilized to examine the coping mechanisms during natural disasters, pandemics, and human crisis based on its utility as a social work intervention.
- There is a gap in current research on the relationship between mental illness and smoking, drinking, and sleeping behaviors among women living through a pandemic. In fact, there are only sparse findings on the topic of mental health and sleep disturbances during quarantine.

METHODOLOGY

Research Design
- The present cross-sectional study used data analysis from Patient Health Questionnaire-4 (PHQ-4); stress adapted Impact of Event Scale-6 (IES-6) gathered via social media utilizing a self-administered online survey.

Sample
- The present study makes use of a subsample of female participants (n=3,688) drawn from the original study's (n=6,391).

Independent
- ❖ Mental illness (anxiety/depression). Anxious behaviors were assessed by items on the Patient Health Questionnaire-4 (PHQ-4), (Lowe, Wahl, Rose, et al, 2010) instrument. A 4-point Likert scale format was implemented, and the response options ranged from 0 (not at all) to 3 (nearly every day). A greater score on the PHQ-4 scale marked a higher frequency of anxiety. An example of questions to assess for anxiety was, "Feeling nervous, anxious, or on edge?"

Dependent
- ❖ Smoking, drinking and sleeping behaviors were assessed. The present study utilized the stress adapted Impact of Event Scale-6 (IES-6), (Weiss and Marmar, 1997) instrument to measure changes in tobacco and alcohol use. A Likert-scale format was implemented, and the response options ranged from 1 (much less) to 5 (much more). A greater score on the IES-6 scale marked a higher frequency of tobacco, and alcohol use, and increase in sleep. There was one item for smoking tobacco, drinking alcohol, and sleeping respectively.
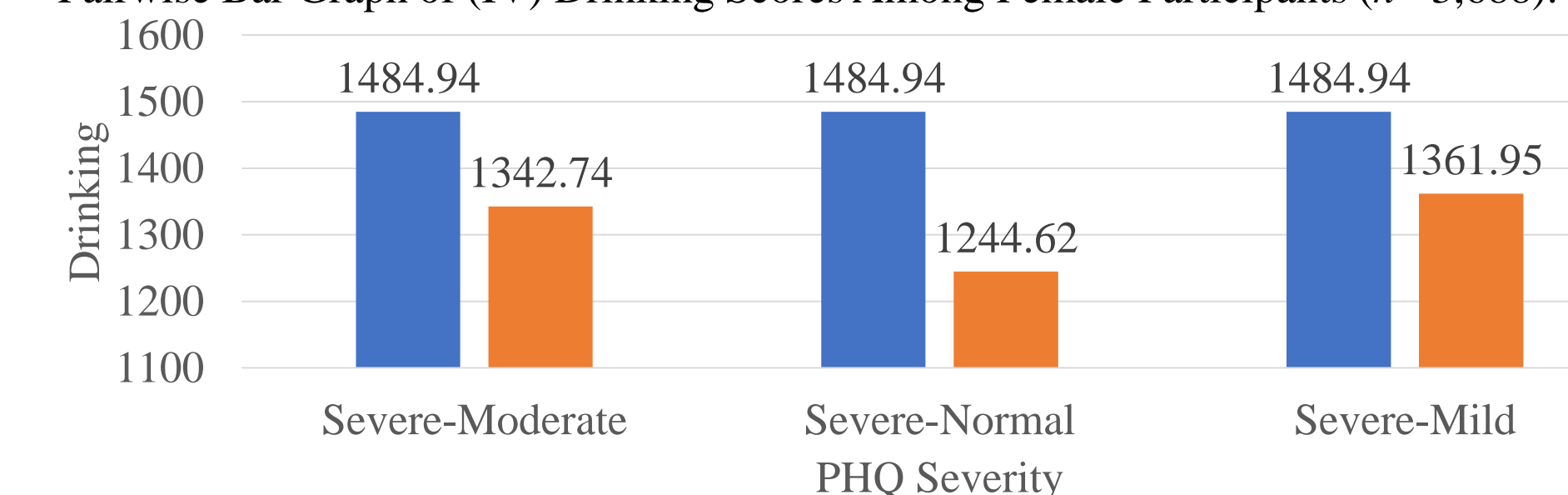
RESULTS: DRINKING

A Kruskal-Wallis H-test was conducted comparing mean ranks of drinking scores among study participants from various PHQ4 severity groups. A significant result was found (H(3) = 19.01, p< .01), indicating that the four PHQ4 severity groups differed from each other in drinking. Follow-up pairwise comparisons indicated that those with severe anxiety had higher drinking scores (Mean Rank = 1484.94) than those with moderate anxiety and depression (Mean Rank = 1342.74). As shown in Table 3 pairwise comparison, the PHQ4 severity levels among study samples who experience anxiety and depression show a significant increase in drinking alcohol; p = <.01. A bar graph depicting differences in drinking by PHQ4 severity are presented in Figure 1.

Table 3.
Significant Pairwise Comparisons of Drinking by Anxiety and Depression Severity

PHQ Severity 1- PHQ Severity 2	PHQ Severity 1	PHQ Severity 2	p
Severe-Moderate	1484.94	1342.74	<.001
Severe-Normal	1484.94	1244.62	<.001
Severe-Mild	1484.94	1361.95	<.001

Figure 1.
Pairwise Bar Graph of (IV) Drinking Scores Among Female Participants (n= 3,688).


RESULTS: SLEEPING

A Kruskal-Wallis H-test was conducted comparing mean ranks of sleeping scores among study participants from various PHQ4 severity groups. A significant result was found (H(3) = 24.92, p< .01), indicating that the four PHQ4 severity groups differed from each other in sleeping. Follow-up pairwise comparisons indicated that those with severe anxiety had lower sleep quality (Mean Rank = 2306.35) than those with moderate anxiety and depression (Mean Rank = 2498.58). As shown in Table 3 pairwise comparison, the PHQ4 severity levels among study samples who experience anxiety and depression show a significant increase in loss of sleep; p = <.01. A bar graph depicting differences in sleeping by PHQ4 severity are presented in Figure 2.

Figure 2.
Significant Pairwise Comparisons of Sleeping by Anxiety and Depression Severity

PHQ Severity 1- PHQ Severity 2	PHQ Severity 1	PHQ Severity 2	p
Severe-Moderate	2306.35	2498.58	<.001
Severe-Normal	2306.35	2529.89	<.001
Severe-Mild	2306.35	2544.54	<.001

Figure 1.
Pairwise Bar Graph of (IV) Sleeping Scores Among Female Participants (n=3,688).
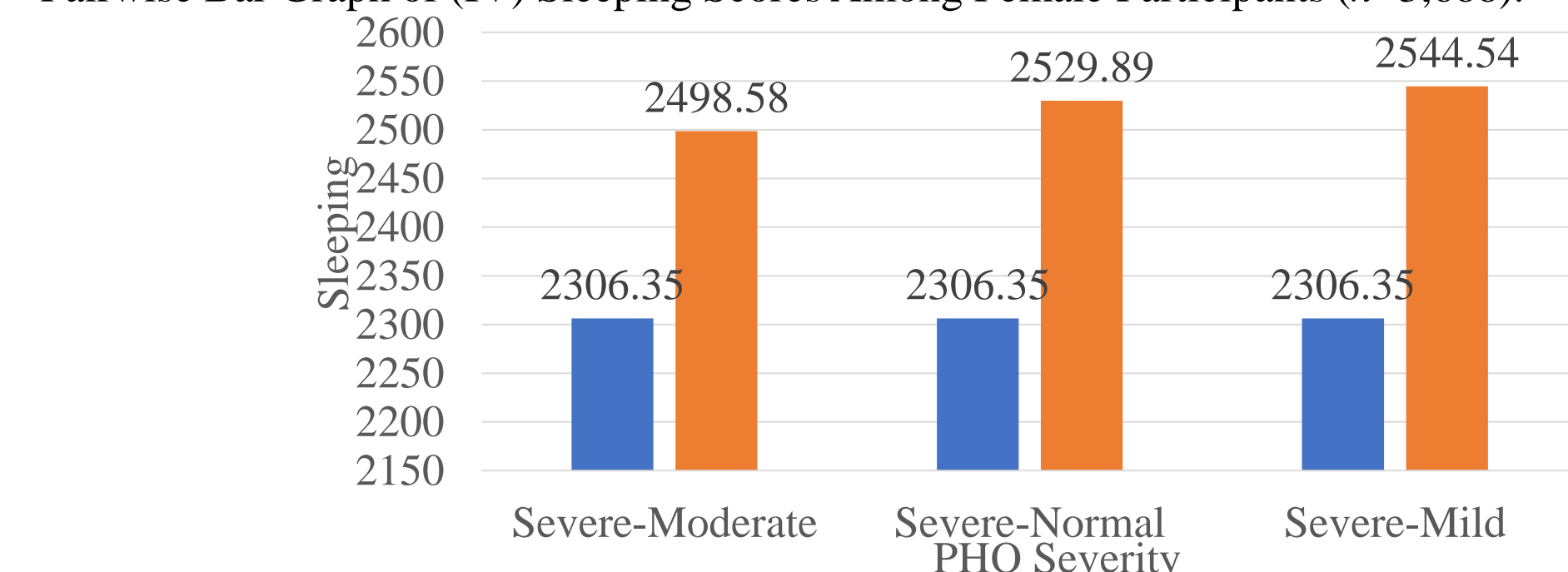
RESULTS: SMOKING

Kruskal-Wallis H test
A Kruskal-Wallis H-test showed there was no statistically significant difference in smoking scores between four groups of PHQ4 severity, H(3) = 7.13, p = .07. This finding was contrary to the researcher's expectations and what has been previously found in other literature.

DISCUSSION

Summary of Findings
- Overall, the results support the hypotheses that there is a significant relationship between mental illness (anxiety/depression) and drinking, and sleeping behaviors among women living through the COVID-19 pandemic. Interestingly, there were no significant changes in smoking behaviors among study participants.

Implications for Research and Social Work Practice
- The present study provided insight on the intersection of co-occurring mental health disorders, and substance abuse, among women during a global pandemic. Further research is warranted to find interventions to support maladaptive behaviors among women with dual-diagnosis.

Strengths and Limitations
- The present study was the first all-female sample examined.
- A majority of participants were White Non-Hispanic, which lacks racial/ethnic diversity among the sample.

REFERENCES

- Löwe, B., Wahl, I., Rose, M., Spitzer, C., Glaesmer, H., Wingenfeld, K., & Brähler, E. (2010). A 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. Journal of affective disorders, 122(1-2), 86-95.
- Weiss, D. S., & Marmar, C. R. (1997). The Impact of Events Scale—revised. In J. P. Wilson, & W. M. Terence (Eds.), *Assessing psychological trauma and PTSD* (pp. 399–411). New York: Guilford Press.

ACKNOWLEDGEMENT