Changes and moderating influences on addictive and mental health symptoms associated with COVID-19  
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INTRODUCTION

- The COVID-19 pandemic has not only resulted in significant morbidity/mortality, it has also had other far-reaching impacts.
- Addictive behaviors have increased during the pandemic. In one study, 13% of those surveyed in June 2020 reported having started or increased substance use to cope with stress or emotions related to COVID-19.4
- There is a known relationship between intolerance of uncertainty (IU) and certain behaviors such as disordered eating.8
- The present study aimed to better understand the impacts of the COVID-19 pandemic on anxiety, depression, and various addictive/excessive behaviors, as well as the role uncertainty and social isolation may play.

METHODS

Procedure

- Online Qualtrics survey to 2 cohorts of EMU students.
- Answered demographic questions and were asked about symptoms and behaviors during two retrospective time frames.
- 1st survey: Compared prior to COVID-19 (prior to March 2020) and during the initial outbreak period (defined as March – August 2020).
- 2nd survey: Compared prior to COVID-19 (prior to March 2020) and during the first part of 2021 (defined as January – March 2021).

Participants (1st survey/2nd survey)

- N = 230/179
- Mean age = 20.8/21.4
- 73/66% Female
- 58/55% White/Caucasian
- 82/82% Single/never married

Measures

- Intolerance of Uncertainty @ Baseline (IUS-12)2
- Quality of Social Interaction (Friendship Scale)6
- Alcohol, Drugs, Smoking, Gambling, Binge Eating, Sexual Behaviors, and Video Game Playing (Recognizing Addictive Disorders -RAD)3
- Restrictive Eating and Internet/Social Media Use (Composite Measure of Problem Behaviors - CMPB)9
- Compulsive exercise (Exercise and Eating Disorders Questionnaire - EED)5
- Depression (PHQ-9)10
- Anxiety (GAD-7)20

RESULTS

Both time periods:
- Increase in depression, anxiety, and many of the surveyed behaviors – see table 1.
- High level of overall uncertainty and increase in social isolation but reduced in the 2nd time period.

1st time period only:
- IU moderated the relationship between change in anxiety/depression and both Internet/social media usage and video game playing.
- Quality of social interaction moderated the relationship between anxiety and smoking.

Table 1 Changes in Symptoms and Behaviors

<table>
<thead>
<tr>
<th>Measures (Range)</th>
<th>Survey 1 Mean Difference (SD)</th>
<th>Survey 2 Mean Difference (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression (Total=0-27)</td>
<td>4.28 (5.25)*</td>
<td>3.74 (4.89)*</td>
</tr>
<tr>
<td>Anxiety (Total=0-21)</td>
<td>2.75 (4.36)*</td>
<td>1.95 (4.44)*</td>
</tr>
<tr>
<td>Social Interaction (Total=0-24)</td>
<td>3.68 (4.44)*</td>
<td>3.45 (4.58)*</td>
</tr>
<tr>
<td>Binge Eating (0-7)</td>
<td>-19.84*</td>
<td>-17.78*</td>
</tr>
<tr>
<td>Sexual Behavior (0-7)</td>
<td>23.64*</td>
<td>18.75*</td>
</tr>
<tr>
<td>Video Games (0-7)</td>
<td>-19.84*</td>
<td>-17.78*</td>
</tr>
<tr>
<td>Social Media/Internet Usage (1-11)</td>
<td>-51.74*</td>
<td>-49.86*</td>
</tr>
</tbody>
</table>

Note: Only significant findings repeated in both survey periods are included here. *p<0.01

DISCUSSION

- Confirms previous findings of increased social isolation, depression, and anxiety related to the pandemic.1,7
- Consistent with the recent report in The American Psychologist, this study also highlights the importance of intolerance of uncertainty in predicting increased mental health related symptoms and behaviors.12
- Supports the moderating effects of social isolation and intolerance of uncertainty on certain behaviors.
- We hypothesize that the same moderating effects were not found later in the pandemic timeframe due to reduced uncertainty, more social interaction, and greater overall resiliency.
- Future research should investigate whether the observed changes in excessive/addictive behaviors persist or remit over time, as the pandemic dissipates.