

## Abstract

### **The Impact of the COVID-19 Pandemic and Changing Educational Environments on Pharmacy Student's Mental Health**

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#### **Introduction**

In December of 2019, the COVID-19 pandemic began, creating many obstacles and challenges for educational institutions. The rapid spread and growth of this pandemic created a constantly evolving environment for the students, staff, and faculty.<sup>1</sup> Medical, graduate, and professional programs all contain rigorous requirements intended to produce highly-educated workers, who are experts in their field and can excel in the workforce. These programs use various assessments such as exams or field training to track their students' progress and ensure their success. For instance, pharmacy students' post-graduation requirements include passing the North American Pharmacist Licensure Examination (NAPLEX) and an examination covering the laws for their specific state of intended practice. However, these programs were forced to make changes due to the COVID-19 pandemic. Many institutions were required to embrace the transitions from in-person to online learning.

In person, synchronous learning has been the default method of learning in professional programs for many years. The opportunities and hands on experiences that were accessible via in person learning, were hindered by COVID-19 protocols intended to slow viral spread. The shift to remote learning modalities in educational environments happened rapidly.<sup>3</sup> This caused institutions and faculty to make quick decisions on how to create an effective, efficient remote learning environment for both students and staff. With little to no time to gather feedback from students and staff regarding the new learning environment, it was inevitable that there would be several kinks and miscommunications along the way.

These sudden, rapid changes in educational environments created areas of uncertainty and additional burden for the students. When transitioning to an online educational environment, there are countless factors to consider. Some of which include: does the student have a quiet environment to learn, does the student have the resources available to access this online environment, and is the student safe at home. During this transition, instead of the institution providing an environment optimized for learning, the student was now being held responsible.<sup>4</sup>

On top of these rigorous programs, continuous assessments, and high standards, more responsibility was being moved onto the students. All college students experience some form of psychological distress under normal circumstances through different curriculums.<sup>4</sup> This gradual increase in responsibilities can lead to more stressful, intense environments. All which can lead to deteriorating mental health or worsening of the student's mental state. These changes can greatly affect the education the students are receiving.

Mental health can affect the student's ability to learn and excel in these programs. With this rapid shift in environments, areas of uncertainty, and constant changing requirements, it is a priority that we understand the effects of the COVID-19 pandemic on pharmacy students. This study includes

both P3 and P4 students within Southern Illinois University Edwardsville School of Pharmacy (SIUE-SOP), classes which went through an abrupt change in their educational modalities due to the pandemic. Prior to the pandemic, SIUE-SOP classes were routinely held synchronously in person. As the COVID-19 pandemic continued, SIUE-SOP transitioned abruptly from in-person to remote learning, which affected lectures, hands-on experiences, peer-to-peer learning, and lab opportunities.

Within this study, both P3 and P4 SIUE-SOP students were surveyed to grasp a better understanding on the effects of COVID-19 transitions in regard to their mental health. This pandemic created a new dynamic, and it is vital that studies are completed to better understand what changes could be made in the future if it is to happen again. By better understanding these transitions from in-person to online learning, institutions can collectively create a healthier, more effective online environment for their students in years to come. This study will specifically detail the effect of these transitions on P3 and P4 students' mental health.

## **Methods**

We conducted a cross-sectional observational study. Our study population was SIUE-SOP class of 2022 (P3 at the time of the pandemic-initiated changes) and class of 2023 (P2 at the time of the pandemic-initiated changes). These two classes were selected due having experienced similar circumstances during SIUE-SOP'S transition from traditional in-person learning to remote learning. We excluded the class of 2024 (P1 during the pandemic) and class of 2021 (P4 during the pandemic). The class of 2024 was excluded due to their lack of exposure to in-person classes at SIUE-SOP; the class of 2021 was excluded due to the pandemic affecting their APPE year, which does not include didactic courses. We created a survey to collect demographic information and questions concerning students' perception of online learning during the pandemic as well as their perceptions of the effect of the transition to online learning on their own mental health.

This study used survey methods to obtain quantitative data from students regarding the transition to online learning and if this change during the pandemic impacted their mental health in any way. The web-based survey was distributed through email to the SIUE-SOP classes of 2022 and 2023. Within the email, information was provided to the participants about the study objectives, anonymity, voluntary nature of the study, IRB approval, and incentive of a chance to win a \$25 Amazon gift card. Questions pertaining to the effects of the learning transition requested students to respond using a six-point Likert scale: strongly agree, agree, somewhat agree, somewhat disagree, disagree, and strongly disagree. The survey included an opportunity to leave qualitative remarks regarding the transition if participants wished to do so.

### *Data analysis*

Data was collected through a web-based survey and the results were summarized with a descriptive analysis on Microsoft Excel. This included percentages and tables of the data collected. Excel algorithms were used to conduct mean/median/mode and percentage. Demographic data will be gathered as nominal data and will be presented as percentage. The survey questions will be listed in a table and will be presented as percentages.