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Changes in Study Approaches, Self-efficacy, and Mental Health in Allied Healthcare Students during the COVID-19 Crisis

Abstract

There is growing concern about student mental health, particularly during the COVID-19 crisis. Mental health factors impact self-efficacy and study behaviors, thus there is a need to explore changes in these factors during the pandemic. The aim of this study was to explore changes in allied healthcare students' approaches to studying, self-efficacy and positive mental health before and during the COVID-19 crisis. The Approaches and Study Skills Inventory for Students, General Self-efficacy scale, Mental Health Continuum – Short Form were given to graduate students (n=26) prior to, and one year into the pandemic. Repeated measures analyses of variance were performed. General self-efficacy scores increased with large effect size, while no significant change pattern was observed for mental health scores. The decrease in strategic study approach scores had a large effect size. The changes in deep and surface study approach scores across time were not statistically significant. While students sustained their mental health and increased their self-efficacy, students may benefit from assistance in organizing daily academic routines and fostering community support during times of crisis.

Keywords

Approaches to studying, self-efficacy, mental health factor, occupational and physiotherapy students

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ABSTRACT

There is growing concern about student mental health, particularly during the COVID-19 crisis. Mental health factors impact self-efficacy and study behaviors, thus there is a need to explore changes in these factors during the pandemic. The aim of this study was to explore changes in allied healthcare students' approaches to studying, self-efficacy and positive mental health before and during the COVID-19 crisis. The Approaches and Study Skills Inventory for Students, General Self-efficacy scale, Mental Health Continuum – Short Form were given to graduate students (n=26) prior to, and one year into the pandemic. Repeated measures analyses of variance were performed. General self-efficacy scores increased with large effect size, while no significant change pattern was observed for mental health scores. The decrease in strategic study approach scores had a large effect size. The changes in deep and surface study approach scores across time were not statistically significant. While students sustained their mental health and increased their self-efficacy, students may benefit from assistance in organizing daily academic routines and fostering community support during times of crisis.

Introduction

Graduate and undergraduate student study behaviors have become a focus of academic interest over the past few decades. Students' varied academic performance types are broadly categorized as "approaches to learning," which are those behaviors and attitudes students evidence in their learning (Richardson, 2013). Deep learners are those who seek wider meaning and to make connections with earlier learning (metacognition) to process information, whereas surface learners are those who tend to operate out of a fear of failure, become overwhelmed by work, and expend minimal effort in their studies (Richardson et al., 2012). A third approach is characterized by organized, efficient study habits aimed to understand how to maximize scores in classes; this is referred to as the strategic approach (Entwistle, 2018). Often students use a combination of approaches, depending on the context and perceived needs of a course (Bonsaksen et al., 2017; Entwistle, 2018).

Occupational therapy students have been shown to use predominantly strategic and deep approaches (Thørrisen et al., 2020) and in cross-sectional studies, stronger adherence to these approaches have been associated with higher levels of mental health, self-efficacy, and self-esteem, as well as increased academic performance (Bonsaksen et al., 2021; Chapman et al., 2006; DaLomba et al., 2021). The limited longitudinal research on changes in approaches, and the malleability of those study behaviors, have shown mixed results, with some pointing to increases in deep learning over time (Chapman et al., 2006; Rosário et al., 2010), while the authors of a meta-analytic study found no consistent change towards more deep approaches across time (Asikainen & Gijbels, 2017). There is a clear need for more longitudinal research on approaches to studying, particularly for students in occupational therapy and physiotherapy.

The ways students approach their studies may be related to their mental health, and there is growing concern about the mental health of graduate students, in particular. Graduate students have reported increased rates of stress and anxiety (Dyrbye et al., 2006) and depression (Kocaleventet al., 2013) compared to the general population. These issues appear to have been compounded by the COVID-19 pandemic and widespread quarantining, as young adults and students reported increased levels of stress responses, anxiety, and depression from the impact of the pandemic on their lives (Browning et al., 2021; Li et al., 2020). Alemany-Arrebola and colleagues (2020) found that college students experienced concerns typically seen during pandemics and times of crises, such as fears of self, family and friends getting ill or dying. Nonetheless, the sudden withdrawal from in-person learning and switch to online learning challenged them to develop new skills rapidly, which led to increased anxiety and decreased self-efficacy for many (Alemany-Arrebola et al., 2020).

Originating in Bandura's (1997) work, self-efficacy is often defined as one's feeling of competence to successfully face life challenges. Students in clinical fields of study, such as occupational therapy and physiotherapy programs, are potentially at high-risk for changes in self-efficacy since pandemic-related restrictions to in-person learning opportunities to master "hands on" skills have become severely limited. This potentially

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impacts a student's clinical self-efficacy, readiness for fieldwork experiences, and ability to pass national exams to enter practice (American Occupational Therapy Association [AOTA], n.d.; AOTA, 2012; Hedman & Felländer-Tsai, 2020).

Much of the available research on mental health has focused on its negative aspects (i.e. stress and mental illness). These findings might be expected during the current worldwide public health crisis. However, some research has suggested the pandemic has caused even more significant, post-traumatic-like responses in students (Tang et al., 2020). More recently, there has been a shift toward viewing mental health on a spectrum, one that extends beyond problem identification to acknowledging behaviors associated with thriving in life. These behaviors may have particular meaning and applicability in this time of crisis. For example, Keyes' (2020) framework for mental health considers more than the absence of mental illness, but also the presence of emotional, psychological, and social wellbeing. The World Health Organization's (WHO) definition (WHO, 2005) further describes mental health as a state of wellbeing that includes effective coping with typical life challenges, engagement in productive work, and contributing to one's society. Positive mental health has since become a focused area of research.

Positive mental health has been associated with use of deep and strategic approaches to studying as well as higher levels of self-efficacy in occupational therapy students (DaLomba et al., 2021). In addition, college students' mental health has been associated with socially supportive environments, a sense of belonging, professional confidence, and engagement (Fink, 2014; McBeath et al., 2018). However, during the COVID-19 crisis, many students struggled with the pervasive and ongoing mental health challenges presented by social distancing, restrictions on social gatherings, quarantining and the associated experience of physical, social, and emotional isolation (Li et al., 2020). With the current public health crisis presenting challenges to mental health and self-efficacy, and the many modifications required in education because of it, it is important to explore how student approaches to studying might shift to adapt to these changes. There is no current evidence presented in the literature about this. The purpose of this study was to explore changes in allied healthcare students' approaches to studying, self-efficacy, and positive mental health during the COVID-19 pandemic.

Our research question was as follows: How do students' approaches to studying, perceived self-efficacy, and mental health change over their first academic year during a time of public health crisis?

Methods

Study Design

The study had a longitudinal survey design. Data collection first took place in Fall semester (September, 2019) then at the end of this semester (December, 2019), both occurring before the COVID-19 outbreak. Follow-up surveys with the same students were conducted a third time in Spring semester (April, 2020), after the COVID-19 outbreak.

Participants and Recruitment

Participants were recruited from first-year students enrolled in the doctoral occupational therapy and physiotherapy programs via personal invitation and presentation of the study. Students were encouraged to ask questions about the study and procedures and were assured of their anonymous participation. All students had a bachelor degree or higher upon entry.

Instruments

Approaches and Study Skills Inventory for Students

The Approaches and Study Skills Inventory for Students short version (ASSIST) is an 18-item self-report questionnaire that identifies student approaches to learning and studying in higher education and measures student engagement in deep, surface, and strategic learning approaches (Bonsaksen, 2018; Entwistle, 2018; Entwistle et al., 2006; Tait et al., 1998). Participants rate the degree to which they agree or disagree with statements on a scale from 1 (disagree) to 5 (agree). Six items pinpoint student preference for aspects of each approach.

General Self-Efficacy Scale

The General Self-Efficacy Scale (GSE) is a tool commonly used for operationalizing the concept of self-efficacy (Schwarzer & Jerusalem, 1995). Each GSE item includes a statement that indicates general self-efficacy, to which participants respond on a 4-point Likert scale, 1 (not at all true) to 4 (exactly true). Scores range from a minimum score of 10 to a maximum score of 40, with higher scores indicating higher levels of self-efficacy.

Mental Health Continuum – Short Form

The Mental Health Continuum-Short Form (MHC-SF) questionnaire is a 14-item tool used to identify positive mental health by focusing on emotional, psychological, and social well-being (Keyes, 2009; Lamers et al., 2011). Each item was scored from 1 (never) to 6 (every day). All items together constitute one scale, where the sum score was used as on overall measure of positive mental health, ranging between 14 and 84.

Statistical Analysis

Scale Calculation and Reliability

Data analysis was completed using SPSS version 26 (IBM Corporation, 2019). Scale reliability was assessed with Cronbach's α and mean inter-item correlations (the latter method used only for the short study approach scales; Briggs & Cheek, 1986). For the ASSIST, the mean of the three scale scores were calculated at each time point. Among the items on the deep approach scale, scale reliability analyses revealed that item 12 did not fit well with the other items at the second and third time-points and was therefore removed before calculating the mean deep approach score at Times 2 and 3. Cronbach's α for the deep approach was at Time 1: 0.62 (mean inter-item correlation 0.22), Time 2: 0.64 (mean inter-item correlation 0.28), and Time 3: 0.61 (mean inter-item correlation 0.25). Cronbach's α for the strategic approach was at Time 1: 0.84 (mean inter-item correlation 0.51), Time 2: 0.80 (mean inter-item correlation 0.42), and

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Time 3: 0.81 (mean inter-item correlation 0.43). For the surface approach, Cronbach's α was at Time 1: 0.70 (mean inter-item correlation 0.30), Time 2: 0.70 (mean inter-item correlation 0.24), and Time 3: 0.70 (mean inter-item correlation 0.29). For the GSE, Cronbach's α was at Time 1: 0.79, Time 2: 0.89, and Time 3: 0.78. For the MHC-SF, Cronbach's α was at Time 1: 0.89, Time 2: 0.90, and Time 3: 0.96.

Analyses of Change Patterns

To assess the change pattern related to study approaches, general self-efficacy and mental health, a series of repeated measures analyses of variance (ANOVAs) were performed. Due to the small sample size, no group comparisons were performed, and no covariates were included. Statistical significance was set at $p < 0.05$, and partial η^2 was used as effect size. Effect sizes were considered small (< 0.06), medium (0.06 > 0.14) and large (> 0.14), according to Pallant (2010).

Ethics

All methods were carried out in accordance with relevant guidelines and regulations. Informed consent to participate was obtained after institutional review board (IRB) committee approval.

Results

Response Rate

Out of 77 doctoral students initially recruited for the study (DaLomba et al., 2021), 26 students responded to the survey at each of the follow-ups (follow-up response rate 33.8 %). These 26 students constituted the current study sample. Among these students, 19 (73.1 %) were occupational therapy students and 7 (26.9 %) were physiotherapy students. Five (19.2 %) were men and 21 (80.8 %) were women, and 17 (64.5 %) were younger than 30 years of age. Scores on each of the outcome measures at each time point are shown in Table 1.

Table 1

Study Approaches, General Self-Efficacy, and Mental Health Across Time (n = 26)

Estimated marginal means	Time 1 M (95% CI)	Time 2 M (95% CI)	Time 3 M (95% CI)
Deep approach	3.75 (3.49-4.01)	3.74 (3.43-4.04)	3.86 (3.60-4.13)
Strategic approach	4.18 (3.90-4.46)	3.87 (3.55-4.18)	3.80 (3.46-4.15)
Surface approach	2.55 (2.33-2.86)	2.31 (2.03-2.59)	2.41 (2.09-2.74)
General self-efficacy	31.2 (29.9-32.5)	31.7 (30.0-33.3)	32.6 (31.3-33.9)
Mental health	63.5 (59.6-67.3)	60.2 (55.5-64.9)	60.0 (54.3-65.6)

Changes in Study Approaches

The change in deep study approach scores across time was not statistically significant (Wilks' lambda = 0.91, F [2, 24] = 1.16, *ns.*). The decrease in strategic study approach scores across time was significant and had a large effect size (Wilks' lambda = 0.69, F [2, 24] = 5.36, p = 0.01, partial η^2 = 0.31). The change in surface study approach scores across time was not statistically significant (Wilks' lambda = 0.89, F [2, 24] = 1.52, *ns.*). Changes in study approaches across time are displayed in Figure 1.

Figure 1a

Trajectories of Deep Study Approaches

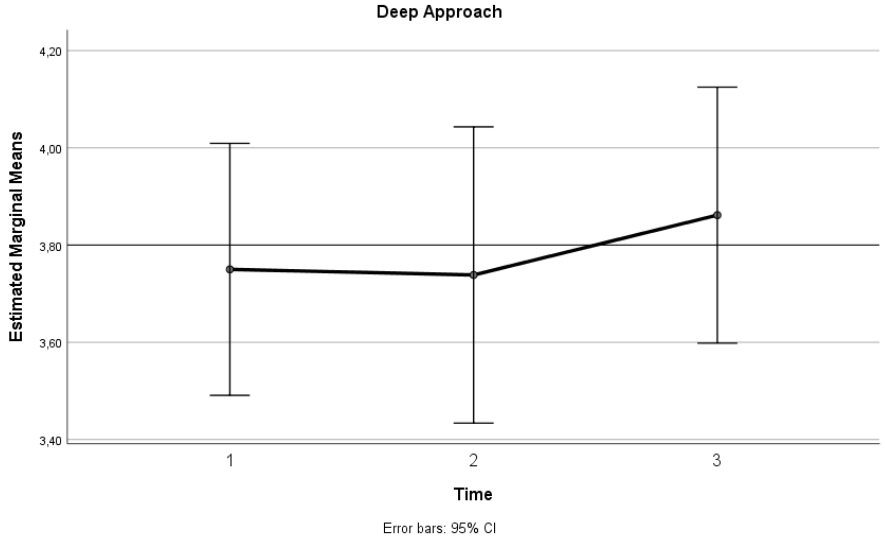

Figure 1b

Trajectories of Strategic Study Approaches

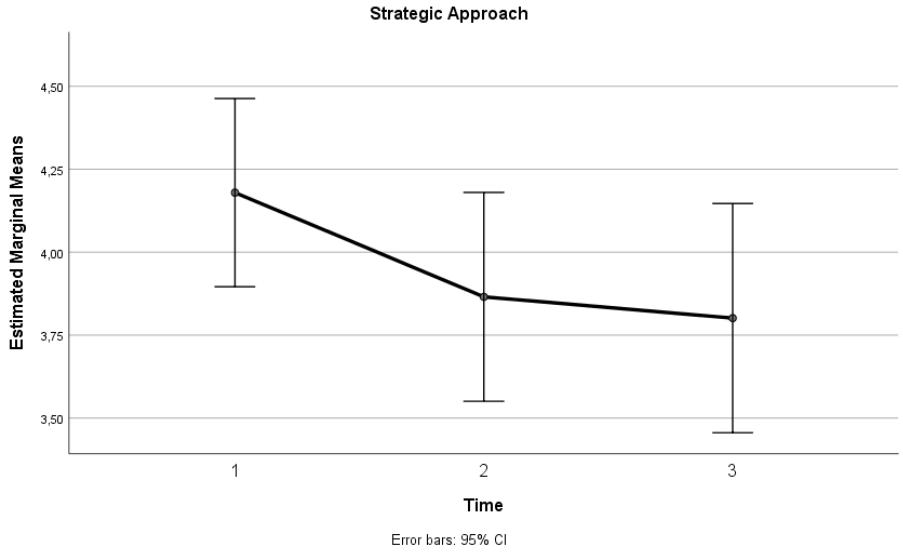

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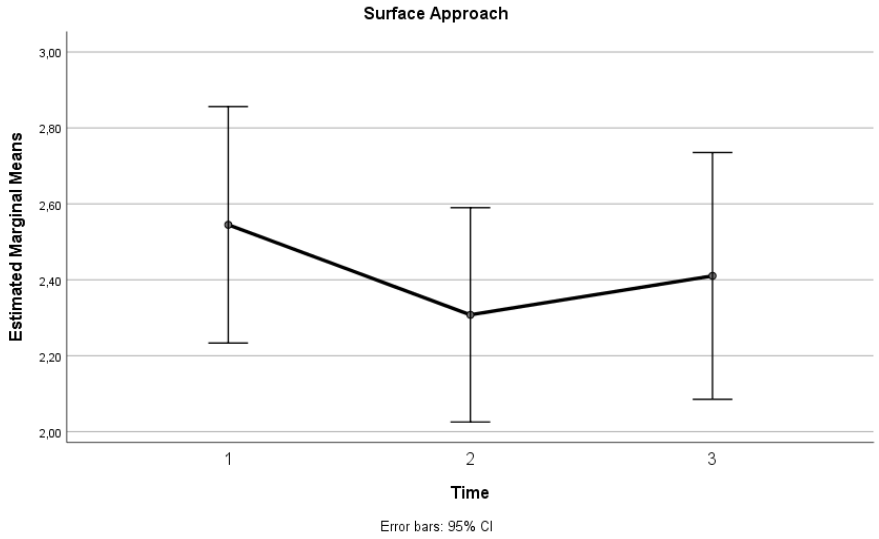
Figure 1c

Trajectories of Surface Study Approaches



Note. Scores on the strategic approach decreased linearly across time. Scores on the deep and surface approaches did not change significantly across time.

Changes in Self-Efficacy and Mental Health

Across the three time points, the increase in general self-efficacy scores were statistically significant with a large effect size (Wilks' lambda = 0.75, F [2, 24] = 3.84, p < 0.05, partial η^2 = 0.24). No significant change pattern was observed for mental health scores (Wilks' lambda = 0.90, F [2, 24] = 1.27, *ns.*). Changes in general self-efficacy and mental health across time are displayed in Figure 2.

Figure 2a

Trajectories of General Self-Efficacy

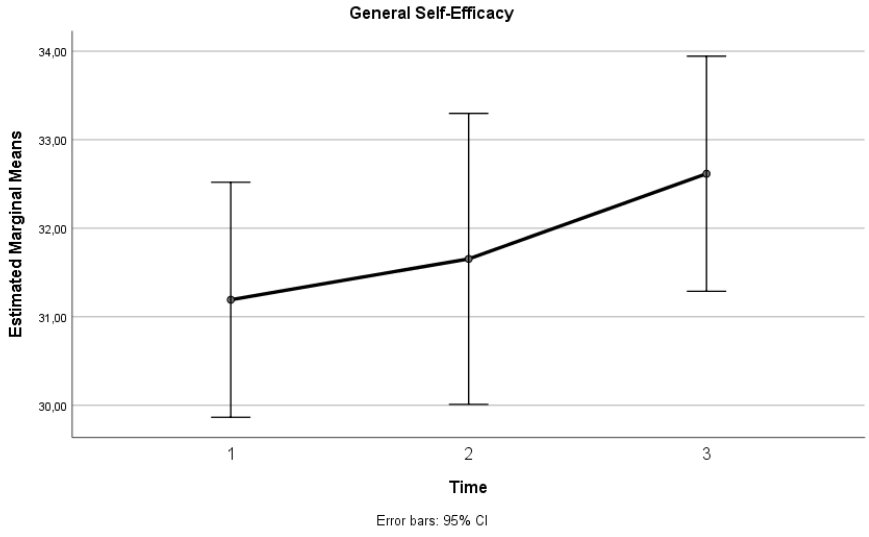
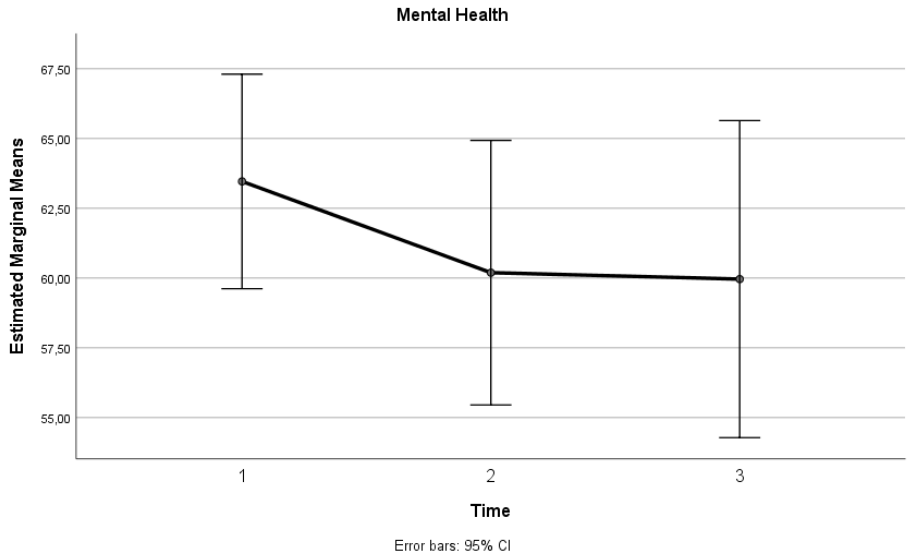


Figure 2b

Trajectories of Mental Health



Note. Scores on general self-efficacy increased linearly across time. Scores on mental health did not change significantly across time.

Discussion

The purpose of this study was to explore changes in allied healthcare students' approaches to studying, self-efficacy, and positive mental health during the COVID-19 pandemic. The students' scores on the strategic approach scale decreased linearly across time, whereas their scores on the deep and surface approach scales were relatively stable. Scores on the general self-efficacy scale increased significantly across time, whereas scores on the mental health scale did not change significantly.

To some extent the marked decrease in student use of strategic approaches was expected, given the tremendous academic and societal changes they experienced between the first and final data collection times: Fall 2019, which was before the COVID-19 outbreak, and April 2020, when students were learning remotely, had lost fieldwork opportunities, and the world had been fully impacted by the virus. The COVID-19 crisis, as with past public health crises, has evoked stress response behaviors which include distractibility, procrastination, difficulty getting organized, and time wasting ("surfing the net," etc.), due to lack of perceived boundaries in quarantine situations (Gurvich et al., 2020; Holingue et al., 2020). Of note, being female and younger than 50 raises the overall risk of stress responses (Gurvich et al., 2020; Holingue et al., 2020), and this is significant since this study was comprised of 80% female students, all under the age of 50. In fact, Valiente and colleagues (2021a) found that this pandemic has been particularly hard on younger adults as concerns about the future continue to unfold.

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The students' retained use of deep approach behaviors was somewhat unexpected, as their initial profiles represented a commonly seen, coherent, deep-strategic combination of approaches, described by Papinczak (2009). This may be explained by their preserved levels of mental health and increased levels of self-efficacy. The majority of the students entered and completed the study with relatively high levels of self-efficacy and mental health, suggesting that the constructs measured in the MHF-SF and the GSE, such as sense of competence in meeting daily life demands, feeling that people are generally good, and the future hopeful, were maintained by a use of metacognitive strategies typically seen in deep learners (Entwistle, 2018). In fact, Zimmerman and Schunk (2001) described self-efficacy as a primary dimension of metacognition and thus fundamentally related to deep learning. Self-efficacy is also embedded in the concept of resilience in facing adverse events (Nafradi et al., 2017). Resilience is defined in many ways but focuses on the concept of stability of function over time when faced with adversity (Bonanno, 2012). This suggests that students in this study might have developed higher levels of self-efficacy as they met the multi-faceted demands of life and education during the pandemic with relative success (self-efficacy), which allowed them to sustain their stable functional trajectories in the face of the challenges of life during the COVID-19 pandemic (resilience).

It also could be that the students in this small cohort represent a built-in social support network, and individuals who report high levels of social support show increased resilience in facing traumatic events (Fritz et al., 2018). Moreover, high levels of emotional, psychological, and social wellbeing directly correlate to resilience (Valiente et al., 2021b), which could explain the students' ability to maintain their deep study approaches. Since the constructs of self-efficacy, mental health, and deep learning seem inter-related and may influence one another, the constellation of factors may serve as a comprehensive protective network in times of crisis.

The results of the study are seen as positive for this group of future healthcare providers. The students' increase in self-efficacy and sustained mental health imply resumption of fuller functioning as the pandemic resolves (Galatzer-Levy et al., 2018). However, it appears that students may require targeted support at focused times during crises to help re-establish effective, organized study behaviors. Likewise, a focus on fostering community support during times of crisis may amplify the protective aspect of this factor, as well as help faculty reach and assist those students who initially used less deep and strategic approaches to studying.

Limitations and Future Directions

This study had a small sample size likely due to repeated administrations and stress due to the evolving worldwide public health crisis, thus the results will likely not be broadly generalizable to occupational therapy or physiotherapy students. It also explored only one graduate-level cohort in a small health sciences university in the western United States. Future studies on changes in study approaches, self-efficacy, and mental health over the course of occupational therapy and physiotherapy programs

in the absence of world crisis are still needed. More research into the longer-term impacts of the pandemic on the allied health student's learning process and outcomes would seem necessary for academic programs and students to prepare for post-COVID challenges.

Conclusion

This study explored the trajectories of occupational therapy and physiotherapy students' study approaches, self-efficacy, and mental health during the COVID-19 pandemic. The students' scores on the strategic approach scale decreased linearly; scores on the deep and surface approach scales were stable; scores for general self-efficacy increased significantly; and scores for mental health did not change significantly across time. This shows that the students were able to maintain several beneficial core study behaviors and attitudes, in spite of the world health crisis, but may indicate a need for support to get organized and refocused on daily academic routines and expectations to meet program requirements, as well as fostering community support amongst students and faculty and other support systems.

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