MENTAL HEALTH AND FOUNDATIONAL ACADEMIC BEHAVIOURS: PIECES OF THE ACADEMIC SUCCESS PUZZLE

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Abstract

The interplay between mental health and academic behaviours has been understudied. This study examined the relationship between foundational academic behaviours (e.g., attending class and meeting assignment deadlines), student mental health and well-being, and academic performance. Participants consisted of 229 students (52.6% female) who participated in a first-year introductory learning-to-learn course. Findings from structural equation modelling indicated: (a) higher levels of foundational academic behaviours predicted higher GPA, (b) higher levels of emotional well-being predicted higher levels of foundational academic behaviours and higher GPA, and (c) foundational academic behaviours mediated the relationship between emotional well-being and GPA. Findings affirm the integral role of mental health in academic performance and highlight the mediating role of foundational academic behaviours in this relationship. The association between emotional well-being and foundational academic behaviours underscores the multifaceted nature of academic performance and the importance of considering both mental health and foundational academic behaviours in academic success. Findings from this study suggest that managing behaviours that facilitate engagement in academic tasks, and mental health as a potential internal condition for learning, are both important pieces to the academic success puzzle.

Keywords: mental health, emotional well-being, foundational academic behaviours, academic success, self-regulated learning

Résumé

Le lien entre la santé mentale et les comportements scolaires a été insuffisamment étudié. C'est pourquoi cette étude examine la relation entre les comportements scolaires fondamentaux (ex. : assister aux cours et respecter la date d'échéance des travaux), la santé mentale et le bien-être étudiant, ainsi que les résultats scolaires. Cette étude porte sur 229 étudiants (dont 52,6 % d'étudiantes) ayant participé à un cours de première année sur les stratégies d'apprentissage. Les résultats obtenus à partir de la modélisation d'équations structurelles indiquent que : (a) des niveaux plus élevés de comportements scolaires fondamentaux peuvent prédire une moyenne générale plus élevée, (b) des niveaux plus élevés de bien-être émotionnel peuvent prédire des niveaux plus élevés de comportements scolaires fondamentaux, ainsi qu'une moyenne générale plus élevée, et (c) les comportements scolaires fondamentaux influencent la relation entre le bien-être émotionnel et la moyenne générale. Les résultats confirment que la santé mentale joue un rôle fondamental en ce qui concerne la réussite scolaire et mettent en lumière le rôle de médiateur que les comportements scolaires fondamentaux jouent dans cette relation. L'association entre le bien-être émotionnel et les comportements scolaires fondamentaux met l'accent sur la nature complexe de la réussite scolaire et sur l'importance de considérer la santé mentale de même que les comportements scolaires fondamentaux dans la réussite scolaire. Les résultats de cette recherche suggèrent que la gestion des comportements qui facilitent l'engagement dans les tâches scolaires ainsi que la santé mentale comme condition interne potentielle à l'apprentissage seraient deux pièces importantes du casse-tête qu'est la réussite scolaire.

Mots-clés : santé mentale, bien-être émotionnel, comportements scolaires fondamentaux, réussite scolaire, apprentissage autorégulé

INTRODUCTION

Achieving success at university is a multifaceted and challenging endeavour. As students transition to post-secondary learning, they encounter a wide range of challenges that can significantly impact their academic trajectory, including new expectations relative to secondary school experiences (Hadwin & Winne, 2012), increased stress from academic demands (American College Health Association, 2022; Keyes, 2005), and mental health issues (Jaworska et al., 2016).

In this challenging context both mental health and academic behaviours contribute to academic performance (Bucker et al., 2018; Kern et al., 1998; Robbins et al., 2004; Webster & Hadwin, 2014; Zollanvari et al., 2017). Positive emotions (e.g., Fredrickson, 2001) are a component of mental health that have been found to contribute to academic achievement (Efklides et al., 2018; Keyes, 2005; Pekrun, 2006). Furthermore, academic behaviours (e.g., Lei et al., 2018; Robbins et al., 2004) serve as a foundation for academic success. We refer to these as foundational academic behaviours because these behaviours set the stage for more sophisticated learning processes. However, while both mental health and academic behaviours have been linked to academic performance, the research to date has largely considered these factors in isolation. As such, the current study examined how mental health and foundational academic behaviours contribute to academic success in the university context. By considering the contributions of both these factors on academic performance, this study provides recognition that student success encompasses both academic performance and mental health. Furthermore, findings can serve to inform supports that tap into the synergy between positive mental health and academic success.

EMOTIONAL WELL-BEING AND ACADEMIC BEHAVIOURS IN STUDENT SUCCESS

Student academic success is multifaceted and involves regulating important and complex processes including learning and mental health. Mental health, widely viewed as a state of well-being. Flourishing mental health supports individuals in coping with stressors, working productively, and functioning as a contributing member of society (World Health Organization, 2022). Mental health challenges are increasingly recognized as a concern on university campuses (Chiose, 2016). National surveys in Canadian and U.S post-secondary institutions found students reported: (a) feeling exhausted by their academic work, and (b) experiencing high level of stress and anxiety that negatively impact physical and mental health, as well as academic and personal success (American College Health Association, 2022).

According to the dual-continua model of mental health (Keyes, 2002), mental health and mental illness are distinct but related dimensions. Mental health is described on a continuum from flourishing (optimal well-being) to languishing (poor mental health), whereas mental illness is represented on a distinct but correlated axis ranging from no illness to serious mental illness (Keyes, 2002, 2005). From this perspective, one can experience flourishing mental health even in the presence of mental illness.

Complete mental health consists of both *hedonia* and *eudaimonia* (Ryan & Deci, 2001). While eudaimonia refers to doing well in life and attaining self-set standards for a person's best self, the current study focuses on the hedonic dimension, which rests on a determination of well-being that is largely subjective and equates well-being with pleasure, happiness, and satisfaction with life (Trompetter et al., 2017; Ryan & Deci, 2001). In Keyes's dual-continua model of mental health, the hedonic dimension is referred to as emotional well-being, which includes the presence of positive affect and life satisfaction (Keyes, 2005) and includes both a cognitive (e.g., life satisfaction) and affective (e.g., happy) evaluation of quality of life (Ryan & Deci, 2001).

While few studies have directly examined the specific impact of emotional well-being on academic outcomes, the research to date indicates flourishing mental health, including emotional well-being, predicts achievement-related functioning, including: (a) adopting an incremental view of ability, (b) endorsing mastery-approach goals, (c) reporting higher self-control and grades, and (d) less procrastination (Howell, 2009). In particular, positive emotions and emotional well-being contribute to proactive academic behaviours and numerous successful outcomes. For example, evidence suggests positive affect, a central component of emotional well-being, may be the cause of many desirable characteristics and resources correlated with success (Lyubomirsky et al., 2005; Sheldon & Lyubomirsky, 2019). Furthermore, Webster and Hadwin (2014) showed that positive emotions (which comprise emotional well-being) were positive predictors of self-evaluations of goal attainment and self-regulated learning, which in turn facilitates academic success. Finally, emotional well-being, positive affect, and life satisfaction are linked to academic achievement (Bucker et al., 2018; Carmona-Halty et al., 2021), and associated with adopting mastery-oriented approach goals, which are in turn predictors of academic success (Bucker et al., 2018).

FOUNDATIONAL ACADEMIC BEHAVIOURS

In addition to mental health, student behaviours contribute to academic success. The broad construct of academic engagement is multidimensional and involves aspects of students' behaviour and cognition (Fredricks et al., 2004). All types of academic engagement involve agentic and approach-oriented involvement with academic tasks (Pekrun et al., 2012). Engagement is defined by an observable, action-oriented subtype (behavioural) and two internal subtypes (cognitive and affective engagement) but is distinguished from motivation. Engagement is ac-

tion (observable); motivation is intent (internal) (Reschley & Christenson, 2012).

Despite growing interest in the importance of agentic behaviours and processes, findings from recent research suggest that some basic academic behaviours might be necessary foundations for more sophisticated learning engagement. We use the term *foundational academic behaviours* to refer to a narrow set of prerequisite behaviours such as attending class, logging in, submitting assignments, and meeting deadlines. These foundational academic behaviours are necessary conditions for other behaviours observed during meaningful learning and motivation typically associated with self-regulated learning (e.g., setting a learning goal, self-monitoring, choosing a learning strategy).

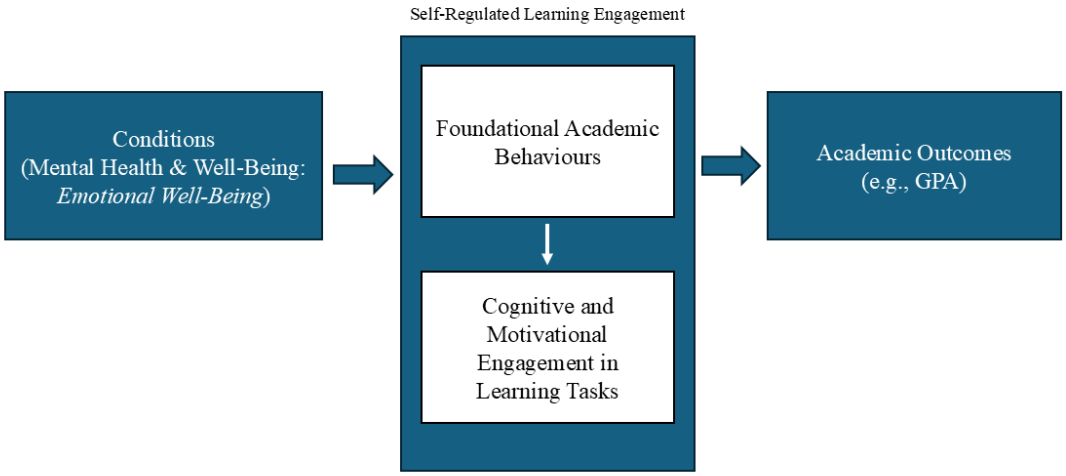
Past research indicates that foundational academic behaviours are important for academic performance. For example, attending class is reported to be one of the strongest predictors of academic performance (Kassarnig et al., 2018). While foundational academic behaviours alone may be insufficient for high academic performance, we hypothesize these behaviours are necessary foundations. That is, students who fail to attend class, open learning management systems, or submit assignments will be severely impaired in terms of their capacity to engage more deeply or meaningfully with course concepts.

Some recent findings support this hypothesis. Specifically, a learning analytics study by Davis et al. (2020) found that foundational academic behaviours (e.g., frequency of completing online learning activities) distinguished weak performers (course grade F to C+) from good performers (B- to B+) in a first-year undergraduate course (Davis et al., 2020) even when those activities did not directly contribute to course grades. Similarly, Edwards et al. (2020) found that traces of foundational academic behaviours (e.g., frequency of completing important weekly course activities) were higher for students who performed well in the course even though those activities did not contribute directly to the course grade. We argue that students who fail to show up for class are under-represented in student success literature because they are sources of "missing data," yet it is precisely these students that we need to understand if we want to design effective student success and retention interventions.

SELF-REGULATED LEARNING

Self-regulated learning (SRL) provides a theoretical framework well suited to the study of how mental health and student behaviours impact academic success. Self-regulating students strategically manage their own learning, emotions, motivations, and behaviours to successfully engage in academic tasks (Schunk & Greene, 2018; Usher & Schunk, 2018). Specifically, SRL models recognize that studying is a cyclical and recursive process informed by self and situational conditions and generating successive learning products that inform future cycles of SRL. Winne and Hadwin's (1998, 2008) model of SRL posits that external and internal factors serve as conditions shaping engagement in academic work (e.g., foundational, cognitive, and motivational engagement) and lead to a range of academic outcomes (e.g., task performance, course grade, GPA). Internal conditions include emotional states, mental health, and motivational beliefs (Webster, 2019; Winne & Hadwin, 2008). SRL provides a framework to examine both the internal conditions (emotional well-being) and the subsequent engagement behaviours (foundational academic behaviours) that contribute to academic success as depicted in Figure 1 (Winne & Hadwin, 2008). These processes can be modelled on micro-scale, iteratively within task episodes, or on a macro-scale over an academic semester.

Figure 1
Model of Internal Conditions, Engagement Behaviours, and Academic Outcomes Within an SRL Framework



Mental health is considered an internal condition associated with thought-action repertoires that facilitate approach behaviours (see Bucker et al., 2018; Fredrickson, 2001; Linnenbrink, 2007) and learning practices (Howell, 2009; Robbins et al., 2004). In contrast, SRL and student engagement behaviours provide a bridge between personal and contextual factors on one side (e.g., mental health) and achievement on the other (e.g., GPA) (Appleton et al., 2006; Christenson et al., 2008; Fredricks et al., 2004; Pintrich, 2004). In this study, we were specifically interested in the unique contribution of this preliminary form of academic engagement for explaining how mental health conditions (emotional well-being) contribute to academic performance outcomes. We hypothesized that languishing mental health may contribute to poor academic outcomes because when emotional well-being suffers, students are more likely to disengage by missing classes or failing to submit work.

Although research on the relationship between foundational academic behaviours and mental health and well-being is limited, prior findings have shown that well-being facilitates behaviours and skills that enable students to succeed in academic settings (see Bucker et al., 2018; Fredrickson, 2001; Linnenbrink, 2007), and student behaviours are associated with personal factors (e.g., mental health) and with achievement (Appleton et al., 2006; Christenson et al., 2008; Fredricks et al., 2004; Pintrich, 2004). However, further research is needed if we are to understand how these basic elements can set the stage for the myriad of more complex processes that contribute to academic success.

CURRENT STUDY

The purpose of this research is to examine how mental health and foundational academic behaviours contribute to academic achievement. Specifically, we addressed three research questions in this study.

First, does emotional well-being predict GPA directly? Based on evidence that links mental health with academic performance (Bucker et al., 2018; Howell, 2009), we hypothesize that emotional well-being will predict GPA.

Second, do foundational academic behaviours contribute to GPA? Considering findings that student behaviours predict academic performance (Robbins et al., 2004), we expect that foundational academic behaviours will have a positive association with GPA.

Third, do foundational academic behaviours mediate the association between emotional well-being and GPA? In light of limited findings indicating well-being facilitates adaptive behaviour (Bucker et al., 2018; Fredrickson, 2001; Linnenbrink, 2007) and our theoretical framework of SRL, we expect foundational academic behaviours to mediate the association between emotional well-being and GPA.

METHODS

Participants

Participants were 229 consenting students (52.6% female) from a public university in western Canada. The mean age of the participants was 19.6 years (*SD* = 2.15). Participants included first-year (66%), second-year (25%), and upper-year (9%) students from a range of faculties. All participants were enrolled in an undergraduate, elective educational psychology course that introduced students to the science and strategies for self-regulating learning, motivation, emotions, behaviours, and psychological and social well-being.

Data Collection

As part of their coursework, students in the course were required to complete weekly study diaries, in which they planned, performed, and reflected on a single two-hour study session for one of their academic courses using a scripted study diary tool called the MyPlanner (Hadwin et al., 2012; McCardle et al., 2017). The MyPlanner prompted students to rate their mental health and foundational academic behaviours over the past week before planning for the upcoming week. Students completed 10 weekly diaries over the course of the semester.

Research Context

Participants were voluntarily enrolled in an undergraduate course on learning strategies for university success. The course included weekly self-assessments where students reflected on their personal experience with the course topic covered that week. The assessments used for data collection were completed as part of the weekly course requirements. While students received credit for the course, they were not graded on any of the self-assessment measures used in the research. The self-assessments are included to facilitate student self-awareness and support student learning and well-being. This study used an approved implied consent ethics protocol. All students participating in the course implicitly consented to the inclusion of course activities in the research analysis once the course had concluded. Students were reminded about this protocol at multiple points during the term, and participants were able to withdraw from having their course activities included in the research without penalty at any point during the course. In addition, confidentiality was ensured through replacing student names with numeric identifiers and completing analysis after course grades were posted. Consent information and data were released to the researchers after course completion and submission of grades.

Variables and Measures

Mental Health

The Mental Health Continuum Short Form (MHC-SF; Keyes, 2005) is a 14-item scale measuring both hedonic and eudaimonic well-being with three subscales: (a) emotional, (b) psychological, and (c) social well-being. An adapted version of the three-item emotional well-being subscale was provided to students as part of the MyPlanner diary tool. For the prompt, "During the past week, how often did I feel:" students were asked to indicate their responses to the options of (a) happy, (b) interested in life, and (c) satisfied with life. Students rated each item on a 5-point Likert scale from one ("Never") to five ("Every day"). Note that in the Results section, "happy" corresponds with EWB1 (emotional well-being item 1), "interested in life" corresponds with EWB2 (emotional well-being item 2), and "satisfied with life" corresponds with EWB3 (emotional well-being item 3).

The MHC-SF (Keyes, 2005) has widely been used and evaluated psychometrically (Keyes, 2005; Lamers et al., 2012; Orpana et al., 2017). In this study, the average weekly range of Cron-

bach's alpha was .89–.95 for this scale. While the MHC-SF uses the past month as the frame of reference, this study used the last week as the frame of reference. Additionally, the scale was administered weekly for 10 weeks. Repeated sampling addresses several concerns with cross-sectional designs, including: (a) enabling within-person variation to be distinguished from between-person differences (Curran & Bauer, 2011), (b) the reduced time between the experiencing and the reporting reduces retrospection bias and improves the likelihood that reports are from actual events or experience versus perceived self-image (Schwarz et al., 2009), and (c) short-term change and fluctuation is captured (Rush & Hofer, 2014).

Foundational Academic Behaviours

The Foundational Academic Behaviours scale was provided to students as part of the weekly MyPlanner diary tool to capture a student's perceived success in managing typical academic work demands that constitute weekly participation in academic work (Hadwin & Rostampour, 2020). The three foundational academic behaviour questions in reference to the last week were: (1) I attended all classes in my courses, (2) I met all my deadlines in my courses, and (3) I did all my assignments in my courses. Items were measured with a "yes or no" response option. Yes or no responses were selected to capture with certainty whether students performed these behaviours or not, staying away from other response options that may capture an uncertain middle ground.

Academic Performance

Academic performance was measured by semester GPA. Semester GPA was obtained by institutional data and reported on a nine-point GPA scale, where 1 = D (50–59%), 2 = C (60–64%), 3 = C+ (65–69%), 4 = B- (70–72%), 5 = B (73–76%), 6 = B+ (77–79%), 7 = A- (80–84%), 8 = A (85–89%), and 9 = A+ (90–100%).

Data Analytic Strategy

A mediation model was fit with emotional well-being as the predictor, semester GPA as the outcome, and foundational academic behaviours as the mediator. The Lavaan package in R (version .6-15; Rosseel, 2012) was used for the analysis. Average scores across the 10 weeks of data collection were used to represent foundational academic behaviours and emotional well-being. On average, each student completed eight (*SD* = 2.3) out of the 10 questionnaires.

Structural equation modelling (SEM) is an appropriate analytic approach to address the research questions in this study in terms of: (a) the predictive capacity of mental health and foundational academic behaviours on GPA (RQ1 and RQ2), and (b) the role of foundational academic behaviours in mediating this association (RQ3) (Tomarken & Waller, 2005). Average scores were utilized in the SEM analysis to improve model fit through more accurate parameter estimates and standard errors (Rush et al., 2017). In addition, average scores combine information from multiple time points, which can increase the reliability of the measurement compared to single time point assessments and reduces the complexity of the model structure (Rush et al., 2017). A more parsimonious model is important with a smaller sample, which is the case in this study.

The Weighted Least Squares Mean and Variance–adjusted (WLSMV) estimator was employed in this study as it provides more accurate parameter estimates, standard errors, and test statistics when dealing with categorical or ordinal data, particularly in cases of non-normality or small sample sizes (Flora & Curran, 2004). Given that the dataset comprised 10 repeated measurements (with an average of 1.8 weekly diaries missed, *SD* = 2.3), the computation of the average indicators for Emotional Well-being and Foundational Academic Behaviours resulted in no missing values. The following fit indices criteria indicated good model fit: comparative fit index (CFI; Bentler, 1990) and Tucker-Lewis fit index (TLI) greater than 0.95; root mean square error of approximation (RMSEA; Jackson et al., 2009; Steiger, 1990) and standardized root mean square residual (SRMR) below 0.05 (see Byrne, 2016; Hu & Bentler, 1999).

RESULTS

Descriptive Statistics and Correlations

Descriptive statistics are displayed in Table 1. Skewness and kurtosis estimates revealed that items 2 and 3 of the Foundational Academic Behaviours Scale exhibit negative skewness (-1.4). Furthermore, the Mardia test of multivariate normality, applied to both foundational academic behaviours and emotional well-being, indicated deviations from the assumption of multivariate normality. These findings substantiate the selection of WLSMV as a robust estimation method in response to these violations. Bivariate correlations presented in Table 2 indicated that most variables are significantly positively correlated, as anticipated. Of note, the feeling of satisfaction (emotional well-being item 3) demonstrated the strongest correlation with foundational academic behaviour items, whereas class attendance (foundational academic behaviour item 1) exhibited the weakest correlation with emotional well-being items.

Measurement Quality

Given that both the emotional well-being and foundational academic behaviour categories consist of only three items each, their measurement models are defined as just-identified unidimensional factors, resulting in zero degrees of freedom. Thus, confirmatory factor analysis and reliability test were conducted to assess the item-factor loadings and internal consistency of the scales. All items significantly loaded onto their respective factor (0.90–0.93 for the emotional well-being scale; 0.46–0.88 for the foundational academic behaviour scale). McDonald's ω was 0.94, 95% CI [0.93, 0.95] for the emotional well-being and 0.74, 95% CI [0.69, 0.8] for the foundational academic behaviour, showing the acceptable internal consistency of the scales. Further exploratory factor analysis revealed that a single dimension accounted for 62% of the variance in foundational academic behaviour items and 84% of the variance in emotional well-being items.

Table 1
Descriptive Statistics χ

	Mean	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
FAB1	0.647	0.272	-0.734	-0.203	0.000	1.000
FAB2	0.801	0.198	-1.474	2.530	0.000	1.000
FAB3	0.806	0.190	-1.418	2.203	0.000	1.000
EWB1	3.709	0.780	-0.229	-0.532	2.000	5.000
EWB2	3.738	0.803	-0.326	-0.501	1.667	5.000
EWB3	3.520	0.867	-0.307	-0.281	1.000	5.000
GPA	4.183	2.164	-0.039	-0.774	0.000	8.800

Note. N = 229; FAB = foundational academic behaviours, EWB = emotional well-being.

Table 2
Bivariate Correlations between Observed Variables

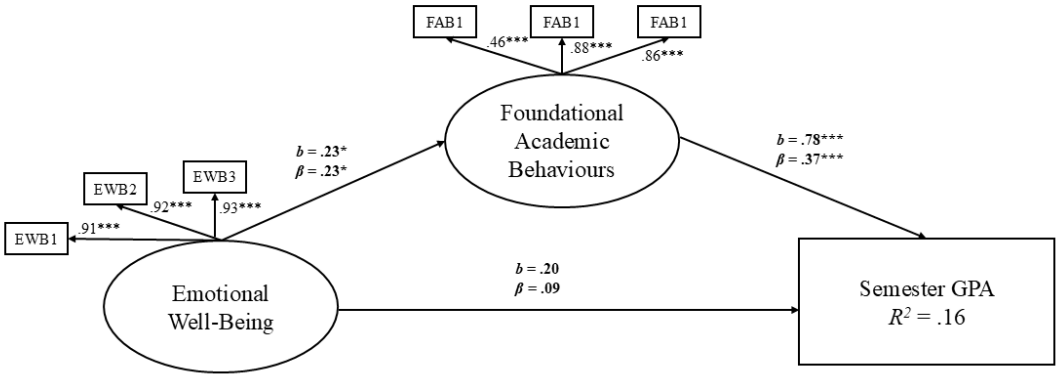
Variable	1	2	3	4	5	6	7
1-FAB1	—						
2-FAB2	0.356 ***	—					
3-FAB3	0.360 ***	0.851 ***	—				
4-EWB1	0.070	0.168 **	0.157 **	—			
5-EWB2	0.073	0.146 *	0.127 *	0.859 ***	—		
6-EWB3	0.133 *	0.257 ***	0.248 ***	0.823 ***	0.841 ***	—	
7-GPA	0.294 ***	0.313 ***	0.294 ***	0.154 *	0.178 **	0.150 *	—

Note. N = 229; FAB = foundational academic behaviours, EWB = emotional well-being.
**p < .05, **p < .01, ***p < .001*

Structural Equation Modelling

To examine structural associations between emotional well-being, foundational academic behaviours, and GPA, a mediation model was fit (see Figure 2). In mediation, the mediators establish the *how* or *why* a variable predicts an outcome variable (Holland et al., 2017). The fit indices of the model were indicative of good fit of model to the data (χ^2 = 19.805, *df* = 12, *p* = .07; CFI = .98, TLI = .97, RMSEA = .036 [90% CI: .001, .064]; SRMR = .041). To facilitate communication, the results were reported according to the classic steps of Baron and Kenny (1986). The first step was to examine the total effect of emotional well-being on GPA. The results indicated that emotional well-being predicts GPA (*b* = .38, *p* = .008). Next, the effect of emotional well-being on foundational academic behaviours (*a path*) was examined and found to be significant (*b* = 0.23, *p* = .016). Next, results showed that the effect of foundational academic behaviours on GPA (*b path*) is also significant (*b* = 0.78, *p* < .001). When the mediator was added to the model (i.e., when controlling for the effect of foundational academic behaviours) the direct effect of emotional well-being on GPA (*c prime*) was found to be statistically non-significant (*b* = 0.20, *p* = .135), as seen in Figure 2. The indirect effect of emotional well-being on GPA through foundational academic behaviours was found to be statistically significant (*b* = 0.18, *p* = .031), supporting the mediatory role of foundational academic behaviours between emotional well-being and GPA. The total effect of emotional well-being on GPA was also significant (*b* = 0.38, *p* = .008, R^2 = .16), and the results showed that 48% of the total effect of emotional well-being on GPA is mediated by foundational academic behaviours. Also, the R^2 for the outcome was .16, indicating that the model can predict about 16% of the variability in student GPA.

Figure 2
Mediation Model



	b	SE	*z*	*p*	*β*
Indirect Effect	0.181	0.084	2.156	.031	.084
Total Effect	0.378	0.143	2.648	.008	.175

Fit indices: χ^2 = 19.805, *df*= 12 *p* = .07; CFI = .98, TLI = .97, RMSEA = .036 [90% CI: .000, .064]; SRMR = .041

DISCUSSION

Students transitioning to post-secondary learning experience a wide array of challenges with potential to impact their academic trajectories (Hadwin & Winne, 2012). This study contributes to the understanding of student achievement by examining how emotional well-being and foundational academic behaviours contribute to academic achievement. Specifically, we hypothesized that languishing mental health (indicated by lower levels of emotional well-being) may contribute to poor academic outcomes (e.g., GPA) because when emotional well-being suffers, students are more likely to disengage by missing classes or failing to submit work (i.e., foundational academic behaviours).

Main Findings

Results indicated that mental health impacts GPA directly and indirectly. The influence of mental health on GPA is partially generated from the capacity of mental health to increase adaptive student behaviours like going to class and completing their work, whereby "adaptive" refers to skills and behaviours that facilitate success in academic settings. In other words, when students feel better and are more satisfied with their lives, they go to class and do their schoolwork, which contributes to academic success. From this perspective, mental health (e.g., emotional well-being) is a condition influencing academic engagement and academic outcomes.

Mental Health Is a Factor in Student Success

Learning, academic success, and mental health are often examined separately but are all important for student success. Mental health, or subjective aspects of well-being, and academic behaviours are connected, and a good education should consider both (Bucker et al., 2018). Similar to the behaviours included in foundational academic behaviours, emotional or hedonic well-being can also contribute to adaptive functioning and subsequent student success (Trompetter et al., 2017) in several ways, includ-

ing: (a) broadening attention and cognition (e.g., more flexible thinking; Fredrickson, 2001); (b) facilitating approach behaviour (Fredrickson, 2001); (c) enhancing behavioural engagement and adaptive academic behaviour (Linnenbrink, 2007), (d) facilitating flexible learning strategies that are components of adaptive SRL (Pekrun et al., 2007, 2002); and (e) contributing to adaptive characteristics, including confidence, optimism, self-efficacy, sociability, energy, effective coping, originality, and flexibility (Lyubomirsky et al., 2005).

It is established that positive emotions contribute to academic success, and that associated outcomes are often influenced by an additional intervening variable (e.g., academic engagement, psychological capital; Carmona-Halty et al., 2021). Research regarding emotions and SRL shows that hedonic aspects of mental health, such as positive emotion, significantly impact current and subsequent learning, before, during, or after a learning experience or SRL event (Efklides et al., 2018; Pekrun, 2006). Findings in this study are consistent, showing that emotional well-being positively influences GPA by increasing foundational academic behaviours.

How Mental Health Impacts Academic Outcomes

The emotional well-being aspect of mental health and foundational academic behaviours align theoretically and are compatible constructs in several ways: they both (a) support adaptive learning processes (Howell, 2009; Wolters & Taylor, 2012), (b) are associated with proximal temporal events, and (c) support activation and approach behaviour (Fredrickson, 2001; Wolters & Taylor, 2012). In addition, students are at risk for low engagement if they experience emotional maladjustment (Skinner & Pitzer, 2012)—or in other words, languishing mental health. Within SRL, desired metacognitive awareness and adaptation cannot be developed until students engage the most basic levels of behaviours, such as showing up for class and taking up opportunities to engage with formal and informal course activities. We refer to this type of engagement as foundational academic behaviours. Similarly, emotional well-being captures emotional activation that is associated with adaptive cognitive and behavioural patterns (Fredrickson, 2001). High levels of foundational academic behaviours, such as showing up for the academic task for example, are necessary steps toward more complex regulatory engagement and processes within SRL. A student needs to actively approach and show up for academic endeavours—which mental health and foundational academic behaviours facilitate—before proceeding to other aspects of self-regulated learning.

The broaden-and-build theory of positive emotion (Fredrickson, 2001) further supports emotional well-being having a causal impact on academic achievement. Positive emotion is associated with better self-regulated learning, higher motivation, better exam grades, and adopting mastery- and approach-oriented goals (Linnenbrink & Pintrich, 2000), which corresponds with increased academic achievement (Bucker et al., 2018). Consistent with Fredrickson (2001), positive emotion likely leads to foundational academic behaviours, as positive emotion directs resources away from a perception of threat and subsequently facilitates more task-related action. Positive emotion further broadens the thought-action repertoire, contributing to more effective behaviour and coping (Tugade et al., 2004). Although others argue that positive affect may lead to disengagement as one is progressing at a sufficient rate toward one's goals (Carver et al., 2010), findings in this study did not support the idea that positive affect leads to negative academic outcomes. When you consider the positive activating emotions that are included in emotional well-being (e.g., happiness, interest, satisfaction), there is an expected positive association with effort, engagement, and adaptive academic behaviour (Pekrun et al., 2007). The association between mental health and academic achievement is far from clear. For example, low-achieving students do not necessarily report low levels of well-being, and high-achieving students do not automatically experience high levels of well-being (Bucker et al., 2018).

Both Personal and Academic Processes Are Components of Student Success

While research remains sparse, current findings support the perspective that social emotional processes such as mental health, and academic processes such as foundational academic behaviours, contribute to student success (Howell, 2009; Rostampour et al., 2020). Howell (2009) found that students with flourishing mental health had the highest levels of adaptive academic functioning and were more likely to use adaptive SRL strategies than students who were languishing. Rostampour et al. (2020) reported that emotional well-being accounted for much of the variance in foundational academic behaviours over the course of a term.

Although considerable research on the importance of positive academic behaviours in student success exists (Bucker et al., 2018; Kern et al., 1998; Robbins et al., 2004; Webster & Hadwin, 2014; Zollanvari et al., 2017), only recently has this research also included non-academic processes like emotion regulation (Webster & Hadwin, 2014) and mental health (Davis, 2020; Howell, 2009; Rostampour et al., 2020). Findings from this study add to this growing body of literature and support inclusion of both social emotional and academic processes in academic success research. Finally, it is essential to not overlook the importance of basic elements such as feeling good (mental health) and going to class (foundational academic behaviours) on academic success.

Significance

The current study has implications for theory, research, and practice. Perspectives of SRL increasingly acknowledge the important contributions of affect and motivation above and beyond cognitive strategies and processes (Efklides et al., 2018; Winne, 2018). Findings from the current study further set the stage for considering the role of mental health as a condition contributing to engagement and academic success (Howell, 2009; Rostampour et al., 2020).

Mental health can be understood within the Winne and Hadwin (1998, 2008) model of SRL as a critical internal condition and product that permeates all four phases. Conceptualizing mental health as a condition in SRL implies that teaching learners about mental health as a correlate for adaptive SRL, and about effective tactics and strategies to increase levels of mental health, will support student success. In this study we focused on foundational academic behaviours, like showing up to class, because we posit that regulating these lower levels of behavioural engagement set the stage for intentional cognitive and metacognitive engagement. Further research is needed to understand how mental health shapes SRL though a range of SRL engagement processes, including cognitive and metacognitive engagement.

Limitations

This study examined data from two semesters of an undergraduate elective learning-to-learn course in a Canadian post-secondary context and may not be generalizable to other settings. Also, our sample size (N = 229) represented the minimum number suggested for a SEM analysis, suggesting the possibility of being underpowered. Future studies should examine this research question with a larger sample size to ensure more robust findings. In addition, this study collected data using only one data source (a weekly self-report diary). The inclusion of additional data sources to understand the patterns and relationships in SRL and mental health could benefit this study (Butler & Cartier, 2018; Winne, 2014). Complementing these kinds of situational self-reports with other sources of multimodal data may provide a more fine-grained understanding of the mechanisms through which mental health conditions, engagement, and outcomes develop in successive cycles of SRL (Hadwin et al., 2007).

This study used repeated sampling for emotional well-being, differing from the typical monthly reference point for the MHC-SF, so findings should be interpreted with appropriate caution. Further, the repeated measurements for emotional well-being and foundational aca-

demic behaviours were averaged to represent the impact of average foundational academic behaviours and emotional well-being on GPA over an academic semester. While appropriate for this study, average scores lose temporal information such as change over time; future research can address temporal dynamics through measurement at multiple time points. Future research should examine the within-person fluctuations of mental health and well-being and academic engagement behaviours as they develop over time.

Caution regarding interpretation is judicious with cross-sectional mediation, as it is not possible to conclude that only a single variable can completely mediate the effect of mental health on GPA. It has been previously shown that two different investigators can both totally account for the effect of the independent variable on the outcome variable through their designated mediator (Rucker et al., 2011), which raises a conceptual challenge with mediation (Hayes & Rockwood, 2017) and suggests further research to examine additional potential mediators is needed. This conceptual challenge to mediation analyses is particularly important given the complex and multifaceted nature of self-regulated learning and mental health.

Finally, both foundational academic behaviours and emotional well-being are components of larger constructs. Foundational academic behaviours are a precursor to broader academic engagement, which also includes cognitive, emotional (Fredricks et al., 2004), and agentic engagement (Reeve, 2013). Emotional well-being is a component of the broader mental health construct that includes both hedonic (e.g., emotional well-being) and eudaimonic (e.g., psychological and social well-being) aspects (Keyes, 2002, 2005). Purposeful inclusion of sub-components of the broader academic engagement and mental health constructs contributed to setting the stage for understanding the complex associations between these multifaceted constructs. Inclusion of remaining aspects of academic engagement and mental health in future research has the potential to further advance such an understanding.

CONCLUSIONS

Achieving academic success is a key consideration for university students. However, this pursuit is multifaceted and involves regulating important processes including learning and mental health. This study builds on other research (Davis, 2020; Howell, 2009; Rostampour et al., 2020) and clarifies the relationship between mental health and academic behaviours by demonstrating that increased levels of one aspect of mental health, emotional well-being, can predict increased GPA as mediated by foundational academic behaviours. Mental health, from these results, appears to be an important consideration for student thriving and success. Although mental health is absent from most previous SRL research, there is precedent for the inclusion of mental health as an internal state in the initial phase of self-regulated work (Winne, 2018) and recognition that student emotions shape engagement and learning (Linnenbrink-Garcia & Pekrun, 2011; Pekrun, 2006). Fortunately, the skills of fostering foundational academic behaviours and psychological regulation (e.g., mental health) can be taught (Kern et al., 1998; Robbins et al., 2004; Zollanvari, 2017). Findings from this study suggest that managing behaviours that facilitate engagement in academic tasks, as well as viewing mental health as a potential internal condition for learning, are both important pieces to the academic success puzzle.

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