

SETTLE DOWN

Preliminary investigations and development of an online toolkit to support student self-regulation in higher education

Keane, Carol; Miller, Leonie; Eady, Michelle; Green, Corinne

Published in:
Frontiers in Education

DOI:
[10.3389/feduc.2022.957328](https://doi.org/10.3389/feduc.2022.957328)

Published: 08/11/2022

Document Version
Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):

Keane, C., Miller, L., Eady, M., & Green, C. (2022). SETTLE DOWN: Preliminary investigations and development of an online toolkit to support student self-regulation in higher education. *Frontiers in Education*, 7, 1-13. Article 957328. <https://doi.org/10.3389/feduc.2022.957328>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



OPEN ACCESS

EDITED BY

Duncan Cross,
University of Sunderland,
United Kingdom

REVIEWED BY

Jerome Francis Carson,
University of Bolton, United Kingdom
Lawrence Nixon,
University of Sunderland,
United Kingdom

*CORRESPONDENCE

Michelle J. Eady
meady@uow.edu.au

SPECIALTY SECTION

This article was submitted to
Higher Education,
a section of the journal
Frontiers in Education

RECEIVED 31 May 2022

ACCEPTED 25 October 2022

PUBLISHED 08 November 2022

CITATION

Keane CA, Miller LM, Eady MJ and
Green CA (2022) SETTLE DOWN:
Preliminary investigations
and development of an online toolkit
to support student self-regulation
in higher education.
Front. Educ. 7:957328.
doi: 10.3389/feduc.2022.957328

COPYRIGHT

© 2022 Keane, Miller, Eady and Green.
This is an open-access article
distributed under the terms of the
[Creative Commons Attribution License
\(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or
reproduction in other forums is
permitted, provided the original
author(s) and the copyright owner(s)
are credited and that the original
publication in this journal is cited, in
accordance with accepted academic
practice. No use, distribution or
reproduction is permitted which does
not comply with these terms.

SETTLE DOWN: Preliminary investigations and development of an online toolkit to support student self-regulation in higher education

Carol A. Keane¹, Leonie M. Miller², Michelle J. Eady^{3*} and
Corinne A. Green⁴

¹Psychology Discipline, College of Human Health Sciences, Charles Darwin University, Darwin, NT, Australia, ²Faculty of Arts, Social Sciences and Humanities, School of Psychology, University of Wollongong, Wollongong, NSW, Australia, ³Faculty of Arts, Social Sciences and Humanities, School of Education, University of Wollongong, Wollongong, NSW, Australia, ⁴Teaching Innovation Unit, University of South Australia, Adelaide, SA, Australia

The impact of stressors on student wellbeing and academic performance is widely documented within the Higher Education (HE) sector, with student drop-out rates linked to poor wellbeing. Identified connections between attrition rates and the levels of support offered to students has led to concerted efforts to better support student wellbeing—particularly for those in the first year of study. The COVID-19 pandemic and the rapid and abrupt shift toward online learning has complicated how students manage stress by reducing students' access to the very resources that might otherwise buffer them (e.g., social connection) exposing them to risk factors (e.g., isolation and greater uncertainty). Accordingly, empowering students to better self-regulate during stressful times is, more than ever, essential to supporting the transition to the adult learning environment. The development of students' self-awareness and self-knowledge of the influences of being stressed on their engagement in study is an important adjunct to self-regulated learning. This nexus between psychology and education is a point for an interventive program that meets a gap in current support efforts, and that recognises the need for such endeavours that situate within the digital landscape of HE. In this paper we describe the groundwork of a single cohort case study that outlines a novel approach to student wellbeing. We discuss the design and development process of the SETTLE DOWN program; an evidence-based and clinically informed series of self-regulation workshops for undergraduate students, which aimed to foster student self-awareness about personal stress responses, facilitate a guided self-discovery of self-regulation techniques, and embed self-knowledge through reflection and practice. Preliminary pilot data is presented with respect to the intended purpose of assessing the suitability of the program material to achieve desired outcomes. The translation of these workshops into an online format to maximise accessibility for students and teachers is extrapolated in discussion of future-directions and next

steps for the SETTLE DOWN program. The case study offers an example of the development of an evidence-based approach to ultimately support students with online availability of the necessary knowledge and skills to foster self-awareness and self-knowledge in the context of engaging in study under stress.

KEYWORDS

stress, self-regulated learning, metacognition, program, online

Introduction

Background

Across the last 2 years, Higher Education Institutions (HEIs) globally have been confronted with the impact of increased stressors on students' learning during the phases of the COVID-19 pandemic. There is mounting evidence of the psychosocial challenges the pandemic continues to inflict, including isolation and limits on the connections students make with their HEI peers, lost opportunity to socialise and benefits from physical proximity (Kwan et al., 2021), fear from heightened uncertainty and increased rates of anxiety and depression in students (Fruehwirth et al., 2021), and the possibility of diminished student and graduate employment options from economic downturn (Biddle, 2021). However, even before COVID-19, there was concern that HEIs were unable to provide adequate services to students, despite young adults reporting high levels of psychological distress (Nerdrum et al., 2006; Fruehwirth et al., 2021). The prevalence of university students' experience of stress is elevated, with one estimate suggesting that in the USA up to 3 in 4 students experience stress at moderate-or-greater levels (Pierceall and Keim, 2007) and a comparable rate of overwhelm in students in Australian universities (Dodd et al., 2021). The literature also suggests university students feel a higher level of stress in comparison to their friends and family who do not attend university (Nerdrum et al., 2006). Stress can manifest as anxiety and depression (Maymon and Hall, 2021), and rates of psychological distress in students have been shown to at least equal (Macaskill, 2013), if not surpass those in the general population (Khawaja and Dempsey, 2008; Browne et al., 2017). Unsurprisingly, researchers have determined negative relationships between student stress and wellbeing (Pascoe et al., 2020), stress and academic performance (Pluut et al., 2015) and wellbeing and dropout rates in higher education (HE) (Mistler et al., 2012), and have identified a connection between attrition rates and levels of support offered to students (Ricks et al., 2014; Cherastidtham and Norton, 2018).

Many stressors have the potential to tax student coping. A major finding is that the first year of university is the most difficult for students to adjust to (Garett et al., 2017)

and Maymon and Hall (2021). These students are focused on the change in their environment including new relationships, managing finances and possibly moving away from the family home, as well as encountering the developmental challenges that arise as they enter young adulthood. These changes happen concurrently as students are exposed to the demanding and unfamiliar environment of HE (Denovan and Macaskill, 2013). The first months of HE study can be especially unsettling (Lin and Huang, 2014). Those who are isolated and who are not able to normalise their student experience can be at increased risk of greater stress levels; membership in a minority group (e.g., racial minorities, sexual minorities, Indigenous students, first-in-family students, and international students) can act as a risk factor (Kwan et al., 2021; Maymon and Hall, 2021). Changes to diet, sleep patterns (Garett et al., 2017) and exercise regimes can all contribute to the level of stress a student experiences as can the challenge of determining a workable life balance between study, work commitments, relationships, and recreation (Gomathi et al., 2012; Pluut et al., 2015; Pitt et al., 2018). It has been reported that being female is associated with greater perceived stress at university (Garett et al., 2017; Saleh et al., 2017). In addition to this myriad of potential stressors, adapting to the predominance of an andragogical approach to learning and teaching within HE may be a difficult transition for some students—particularly school leavers whose previous learning environment may have been pedagogically structured and dominant in approach.

As students shift into the world of adult learning, there is increased accountability for autonomous and self-directed learning engagement (Agonács and Matos, 2019)—a competency that has perhaps become more prominent in response to the impact of the COVID-19 pandemic on the institution of education. It can be challenging to navigate this transition while also adjusting to the increased academic demands of HE such as exams and assessment submission, as well as the stressors of workload and difficulty of program content, all which act as major contributors to student stress levels (Garett et al., 2017; Maymon and Hall, 2021). Progress in academic study is often a function of competition within student cohorts, heightening performance pressure on students that increase the stakes of individual assessments and the likelihood

that students question their self-efficacy relative to their peers (Pitt et al., 2018). The impact of stressors on an individual's self-concept must therefore be carefully considered within the context of a student's capacity for self-directed learning. As aforementioned, the effect of student stress can be expressed through student mental health issues such as anxiety and depression, as well as the associated issues of low self-esteem, low self-worth and even suicidal ideation (Garett et al., 2017; Maymon and Hall, 2021). Impairment to cognitive capacity arising from fatigue and diminished concentration and the implications of this impairment for learning and memory lead to poor academic performance, which in turn contributes to greater levels of stress (Pitt et al., 2018). Students have also reported on engaging in unhealthy habits to deal with their stress and anxiety. These habits include using an unhealthy amount of sleeping pills, smoking cigarettes and alcohol abuse to help them get to sleep which in turn affects their academic ability resulting in a vicious cycle (Curcio et al., 2006; Noland et al., 2009). As well as unhealthy coping strategies, the major theme in data collected from students is a lack of sleep, that results in difficulty paying attention, dramatically lower grades, higher stress levels and having irritable outbursts with both their peers and educators (Noland et al., 2009; Pascoe et al., 2020). Students also engage in avoidance behaviours (e.g., wasting time on the internet, consuming alcohol) as a means of temporary escape from the discomfort associated with the anticipation they will not perform well on academic tasks they have been set.

Positive and negative stress

Stress is a phenomenon that has been the focus of a plethora of research spanning decades and across multiple contexts. Foundational to our understanding of human response to stress was the seminal work of Yerkes and Dodson (1908) and the concept of an optimal level of arousal for peak performance. Selye's (2013) subsequent work on General Adaption Syndrome (GAS) provided an early model of understanding physiological stress adaption and proposed the concept of "eustress" to account for beneficial stress response (Selye, 1976a,b); however, the lack of consideration for cognitive processes within the GAS model was a popular critique suggesting an incompleteness to the model. Lazarus and Folkman (1984) proposed the Transactional Model of Stress, which accommodated for individual variability in the ability to tolerate stress and considered both the perception of stressor and primary and secondary appraisal of the stressor in how we understand human response to stress. Collectively this formative body of theoretical development has led to the current recognition that stress can be experienced and appraised as having both positive and negative dimensions; with the ability to effectively appraise a stressor and self-regulate stress responses becoming the focus of research within multiple contexts—including stress within the

teaching and learning domain. Furthermore, given the wide range of stressors students are exposed to in HE, often for the first time, and the very real possibility that these stressors can converge and interfere with the quality of students' learning, knowledge and skills regarding the management of stress in HE is a current gap in student development. Notably, it is important for students to be aware and mindful that stress can be good for learning and of the essentiality that the stressor (event/situation) is distinguishable from the stress response (physiological and psychological), and how affective responses to stress can be either positive (eustress) or negative (distress) (Rudland et al., 2020).

Higher Education Institution approaches to supporting student well-being

Although the literature suggests that student wellbeing underpins student success (Cárdenas et al., 2022) and that HEIs need to become proactive about wellbeing as an enabler of better student outcomes and improved retention, an informed and conscious effort to address wellbeing in HEIs has only recently been deemed as both relevant and impactful for all students in tertiary settings (Brown, 2016; Broglia et al., 2017; Suhlmann et al., 2018). HEIs globally are coming to the realization that the wellbeing of their students plays an integral role in their academic success (Pidgeon and Keye, 2014). That many HEI students experience substantial levels of stress as a function of becoming an HE student, and that ineffective management of stress can erode academic self-efficacy (Browne et al., 2017), underscores the issue of social responsibility that HEIs have to minimise the loss of student personal wellbeing and enable academic success. Collectively, these issues represent an opportunity cost to the societies HEIs serve (Maher and Macallister, 2013), namely the lost capacity arising from the negative effects on student academic achievement (Sosu and Pheunpha, 2019), together with the higher rates of student dropout resulting from disengagement and burnout (Marôco et al., 2020). In line with this, HEIs have been urged to review the assumption that students can be treated as autonomous learners as they enter university, especially given the much greater heterogeneity in student background and the variable knowledge students have of the expectations of learners at university (Denovan and Macaskill, 2013, 2017).

Some HEIs have developed programs to promote better student wellbeing and thus provide broad-based support to improved academic outcomes (e.g., Mattanah et al., 2010, 2012). These interventions have focused on enhancing student belongingness and identity through the development of social support systems, thus establishing buffers for students when they do experience stressors (Tinto, 1998). Other programs have combined social support with academic demand (small group

work on course material—Pluut et al., 2015; development of a learning community; Ricks et al., 2014) and yet others have sought to engage students in relaxation (Scholz et al., 2016) or to increase mental health awareness, or provide students with brief counselling interventions (Browne et al., 2017). Nonetheless, it would appear that the presence of stress is ubiquitous with university study, and it has been found that daily hassles make a substantial contribution to student stress levels (Pitt et al., 2018). Students need the skills and knowledge to proactively manage stress to minimise any cumulative effects over time, but they also need to be aware of how to manage stress during the inevitable high stress periods associated with academic life (e.g., preparing for and sitting exams, completing assessments) in ways that support performance and achievement.

Using a framework informed by cognitive-behavioural approaches within psychological practice, the approach described here focuses on developing students' self-knowledge in the context of engaging with academic activity under the experience of stress as an important adjunct to self-regulated learning (i.e., the mastery of application of the knowledge of how to learn and the subsequent control over the learning environment this achieves; Zimmerman, 1990). For students, a lack of self-awareness and insight into how they recognise when they are becoming stressed and what do to manage the stress, has the potential for a default toward maladaptive, avoidance-based coping strategies (e.g., procrastination), which in turn can directly lead to poorer academic outcomes, greater stress and lowered self-efficacy longer-term. Exposing students to skills and knowledge that better equip them for high-stress periods at university, and teaching ways to short-circuit behaviour that is not contributing to their wellbeing, is foundational to an educational experience that authentically supports students to achieve to the best of their ability. Furthermore, this learning is of life-long value and can be transferred to other settings such as work and career, supporting each student's negotiation of their future life. It is at this nexus between psychology and education, between self-regulation and self-regulated learning, between the individual-self and the student-self, where the SETTLE DOWN project is situated and meets an important gap in the HE student attrition literature.

This approach is also complimentary to positive psychology interventions (Seligman and Csikszentmihalyi, 2000) that focus on the enhancement of wellbeing rather than the targeting of behaviour that has potential clinical relevance. Nonetheless, the current project seeks to improve the overall wellbeing of students in HE by providing students with the knowledge to appraise stressors and strategies to assist in the management of stress responses. In turn, this psychoeducation is anticipated to lead to a reduction in psychopathological stress response and re-engagement with goal-directed behaviour. The prevalence of mental health issues amongst HE students suggests that such a direct focus on stress management is warranted.

Self-regulation in the learning context

The SETTLE DOWN workshop development was informed by Zimmerman and Moylan's (2009) cyclical phases model of learning self-regulation: Forethought phase, monitoring, and self-reflection (feedback process). Self-regulation in this context refers to the processes underpinning the cognitions, emotions and behaviours of learners as they pursue goal-directed activity in their learning. Self-regulation is dynamic, as feedback regarding progress toward goal fulfilment is utilised in order to guide future behaviour (Zimmerman and Kitsantas, 2014). Self-regulation more broadly refers to processes governing goal-directed behaviour, including motivational processes and self-control/self-discipline, the latter being related to more "in the moment" impulse control in situations where the temptation to engage in activity with short-term pay-off and greater pleasure (e.g., the pleasure of watching a movie) is pitted against activity with longer-term pay-off and is less pleasurable (e.g., a higher quality assessment submission) (Duckworth et al., 2019). While trait self-control has been shown to be associated with a range of positive outcomes for HE students, including good grades (Tangney et al., 2004), more recent work with adolescents suggests that measures of self-regulation better explain individual differences in learning achievement (Zimmerman and Kitsantas, 2014). Additionally, SETTLE DOWN considers those situations where avoidance of learning activity is driven by the *push* of feelings of distress with learning as well as the *pull* from more pleasurable alternative activities. SETTLE DOWN also places metacognitive awareness as central to identifying stressed states and associated emotional responses so that appropriate strategies to manage stress can be selected and employed. The SETTLE DOWN workshop design is also underpinned by an andragogical approach to adult learning, which recognises the distinct needs of adult learners (Phillips and Burbules, 2000) and is predicated on Malcolm Knowles' (Knowles et al., 1998) six principles for successful adult learning: (1) Recognising the internal motivation driving the adult learner; (2) Understanding that adults are self-directed to learn; (3) Appreciating that adults bring knowledge and life experience into any new learning experience; (4) Actively involving the adult in the planning and evaluation of their learning to optimise engagement; (5) Ensuring that material taught has immediate relevance and impact for job or personal life; and (6) Recognising that adults will respond best to learning that is problem-centred, rather than content-centred, and where real-world application is evident. The workshops consistently orient the student to their post-study goals and work aspirations, so as to connect the self-regulation workshop engagement with these intrinsic motivators—the reason *why*. It was intended that the skills, strategies, and "self" knowledge gained during the workshops would serve as valuable resources for students extending beyond the tertiary learning environment, with anticipated translational

application for job seeking, interview preparation, workforce engagement, and maintenance of healthy work-life balance. It was also anticipated that increasing students' capacity to regulate themselves in relation to academic demands and processes would also support them to maintain healthy balance with non-academic pursuits such as connecting with friends and family, engagement in sport and recreational activities, and other wellbeing foci.

Aim

The overall aim of this body of research was to contribute to HE efforts to address issues of student wellbeing and retention during the first year of undergraduate study. There were two main phases to this research with the following objectives: (1) To design and develop a program of evidence-based and clinically informed self-regulation workshops for undergraduate students, which endeavoured to foster self-awareness about their stress responses, to educate students about stress responses and self-management approaches, to offer opportunities to practice a range of management techniques and to embed self-knowledge through reflection; and (2) To translate these workshops into an online format to maximise accessibility for students and teachers.

This case study introduces SETTLE DOWN, a series of four workshops developed at the University of Wollongong in Australia. SETTLE DOWN assists students to learn about self-regulation in the context of HE, and develops skills to improve their focus on, and completion of, their university studies. The program can help students to navigate the tensions between the desire to do well in their studies and the anxieties that can arise when completing assessments, preparing for exams, and generally engaging in study. Developed and led by a professional clinician, each workshop covers different aspects of self-regulation, identifies unhelpful behaviours that occur when tension goes unmanaged, and introduces techniques to help restore a healthy headspace. In sharing our design, development and testing phases of these workshops, and the process for translation into an online format—the ultimate end-goal for SETTLE DOWN, we hope to encourage other institutions to become more aware and willing to invest in the development of important, flexible, university-based self-regulation and mental health programs.

Methods and materials

A single cohort case study design was used to investigate the suitability of the SETTLE DOWN program content and design for student consumption, and to inform the feasibility of online translation. It was important to ensure that students would not experience adverse consequences from participation, and the

management of student wellbeing was the primary objective in this phase of development.

The SETTLE DOWN program

The overarching aim of the program was to assist students learn how to SETTLE DOWN in times of stress by: (1) listening to what their emotions are communicating to them; (2) understanding the function of their behavioural responses; (3) utilising adaptive coping capabilities in the face of academic challenges; and (4) self-reflecting on their own individual process of self-regulation. The program was developed by a clinician researcher [author CK]. As such, the workshop format, psychoeducation components, and the practical exercises utilised throughout, are all underpinned by the knowledge and skills accumulated through their professional practice as a Clinical Psychologist; informed by principles and best practice guidelines of cognitive and behavioural approaches to anxiety related challenges (Curwen et al., 2018; Beck, 2020), with special consideration for the intended online delivery format moving forward (Pauley et al., 2021).

Each workshop is essentially self-contained and engagement with one workshop is not contingent upon completion of another workshop; however, all workshops are interconnected and engagement with the material from all four workshops considered to provide the most comprehensive treatment of self-regulation capacity and capabilities. All workshops follow a similar format (see Table 1 below) to ensure evident and logical cohesion between each of the four workshops, and to provide a clear framework that can support self-paced movement through the program. The respective foci of the four workshops were as follows:

- Mind and body: Aware, connected, regulated
- Values and goals identification: Choices and consequences of actions
- Thoughts, feelings, behaviours: Exploring the links and underlying core beliefs
- Self-compassion: Self-compassionate self-regulation

A participant SETTLE DOWN workbook was designed to be used as an interactive tool and a place for students to record

TABLE 1 Timing of activities within each workshop.

Activity	Timing
Introduction	5 min
Focusing attention exercise	5 min
Identifying difficulties—two key areas of focus	20 min
Discussing solutions—two key areas of focus	20 min
Workshop close	5 min

reflections and complete workshop related tasks throughout each session. The workbook contained a combination of psycho-education and interactive exercises with space for participants to capture reflections. Throughout the workbook icons were used to assist participants categorisation of learning (focusing attention exercise, knowledge and learning, active participation activity, additional online resources available on this topic). The workbook also contained advice to participants regarding psychological distress and where to seek help in the event that distress was affecting an individual's wellbeing. The students were advised that the workbook was theirs to keep and they were encouraged to think of the completed workbook as a "toolkit" of individualised strategies that they could refer to if needed in the future. This expressed purpose was translated into the online design—discussed in Phase 2 section below.

The program, SETTLE DOWN, was piloted in face-to-face delivery mode with a group of volunteer students from a first-year course unit, prior to releasing the material for wider access *via* online translation. This enabled the authors to assess the feasibility of the program with a target group, fine tune materials and activities, and ensure the safety of the students engaging with the program in a context where clinically trained staff would be present.

Participants

A single cohort of students from a first year Bachelor of Education course unit (Spring, 2018) studying in their second semester of university was pre-identified as the participant sampling pool for Phase 1 of this research. This convenience sample, from which volunteer participants were recruited, was chosen because it was an elective small-sized class with a subject focus analogous with the group-learning process of the SETTLE DOWN workshops. Coffee and muffins were made available for students at the start of each workshop as a token of appreciation for participation. Of the enrolled students in this subject ($N = 42$), 16 registered to participate in the program. Teaching staff [CG, LM, ME] also attended the workshops and the workshops were facilitated by [CK].

The workshops were conducted during Weeks 4–7 of the Spring (2018) session, i.e., a 4-week program—1 workshop/week. This timing was considered optimal, as students would be expected to have begun to experience assessment demands by this time in the program period, and students would have the option to choose to incorporate skills taught in the program into their study activities. Further, students were not expected to be experiencing the highest levels of stress at this early-to-mid stage in the session.

Evaluation plan

Data collection occurred before the commencement, and after the conclusion, of the 4-week program. Students who

engaged with the workshops were asked to provide their responses to a series of brief measures for the purpose of program evaluation. The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) was used to assess experiential avoidance and psychological inflexibility (7 items), with inclusion of the revised Distress (5 items) and Acceptance (7 items) scales (Wolgast, 2014). Participants responded to how true a statement was for them on a 7-point Likert scale (1 = Never True–7 = Always True). The AAQ-II has strong reliability (Cronbach's $\alpha = 0.84$) and the appending scales have been reported to produce at least acceptable reliability (Distress–Cronbach's $\alpha = 0.85$, Acceptance–Cronbach's $\alpha = 0.75$). The General Self Efficacy Scale (GSE; Schwarzer and Jerusalem, 1995) was used to assess optimistic self-beliefs to cope with a variety of life demands. A 4-point Likert scale was used to rate how true a statement was for the participant (1 = Not at all true–4 = Exactly true). The scale is unidimensional with strong reliability ranging between Cronbach's α 0.76 to 0.90, with the majority in the high 0.80 s across samples from 23 different nations (Luszczynska et al., 2005). A further 18 project specific items were included to gather information about study habits (12-items) and lifestyle habits (6-items) of students, which were in alignment with intended outcomes of the SETTLE DOWN program. Each survey took about 15 min to complete (total time 30 min/participant). A free text response question was also included at the end of the post-program survey for additional feedback: *"This is the final question in this questionnaire. As this is the first time we have run these workshops for students we would especially value your input. If you would like to provide any impressions or helpful suggestions, please write your comments in the box below."*

Pre-post change scores in student responses between T1 (pre-program) and T2 (post-program) of the measures were examined to provide confidence in the program's safety for students. Qualitative program evaluation data was consulted to identify any required adjustments of the SETTLE DOWN program in future use.

Results

Quantitative analysis of face-to-face delivery of program

Of the 16 students who initially signed up for the program, 15 provided pre-program data *via* an online survey and 13 attended at least one of the workshops ($M = 3.23$, $SD = 1.17$). Ten students attended the final workshop, and only 7 completed the post-program survey online. These data were examined in an exploratory analysis as part of the feasibility of SETTLE DOWN. Due to the small number of participants inferential statistics were used sparingly. When inferential tests were conducted, a significance criterion of $\alpha = 0.05$ was applied.

Table 2 presents the descriptive statistics of the measures taken pre- and post-program. These highlight small-to-null numerical change in overall means for those participants who provided measures at T2. Given the small group numbers, and to check whether engagement with the second survey was a reflection of participant bias (e.g., lower stress prior to the program commencement), measures at T1 were compared between completers and non-completers at T2. There were no differences between groups for any of the measures. As the statistical power was limited, effect sizes between these groups were also calculated. These highlighted that all effects were small (Cohen's $d < 0.28$). Accordingly, there was no clear indication that post-program survey non-completers were markedly different to completers.

Pearson correlations were run on the T1 measures to determine whether they captured the anticipated pattern of relationships based on the literature. **Table 3** shows that the AAQ-II and the Distress measures were nearly identical, possessing similar correlations to all other variables. Psychological distress was negatively related to general self-esteem, but positively related to reported study habits. There was a trend for psychological distress to be associated with lower lifestyle habit scores, general self-esteem was positively related to lifestyle habits, and lifestyle habits and study habits were strongly and negatively related, thus suggesting that distress is reflected in the study/work/life balance issue students experience (e.g., [Pluut et al., 2015](#)). The Acceptance measure was problematic, as it did not produce a valid reliability metric and failed to relate meaningfully to the other measures. Participants may have misread reverse-score items that were similarly worded. It is also possible that the participants did not view acceptance of feeling and the control of feelings as belonging to the same psychological construct.

To examine patterns of change the pre- and post-program measures were charted for each participant with complete data (see **Figure 1**). Reliable Change Indices for measures with published population statistics (i.e., AAQ-II—[Bond et al., 2011](#); Distress and Acceptance scales—[Wolgast, 2014](#); and GSE—[Luszczynska et al., 2005](#)) were calculated. These limits identify

TABLE 2 Means and standard deviations of measures pre- and post-program delivery.

Measure	Pre-program (N = 15)		Post-program (N = 7)	
	M	SD	M	SD
AAQ-II	21.87	9.23	17.00	5.20
Distress	16.67	6.21	12.86	4.30
Acceptance	28.53	3.58	30.29	3.82
GSE	31.80	5.02	32.29	4.31
Study habits	33.33	6.32	33.00	5.54
Life habits	16.60	3.25	17.29	4.19

TABLE 3 Correlations of pre-program measures (N = 15).

	1	2	3	4	5	6
1. AAQ	0.90					
2. Distress	0.91*	0.82				
3. Acceptance	-0.03	0.02	0.14			
4. GSE	-0.54*	-0.60*	-0.48	0.93		
5. Study habits	0.58*	0.60*	0.25	-0.48	0.81	
6. Life habits	-0.43	-0.44	-0.32	0.65*	-0.65*	0.74

Diagonal entries are Cronbach's α . *Significant at $p < 0.05$. Bold values represent the easier readability, i.e., so that it is clear that none of the measures fully correlate with each other, as would be signified by a 1.00 value.

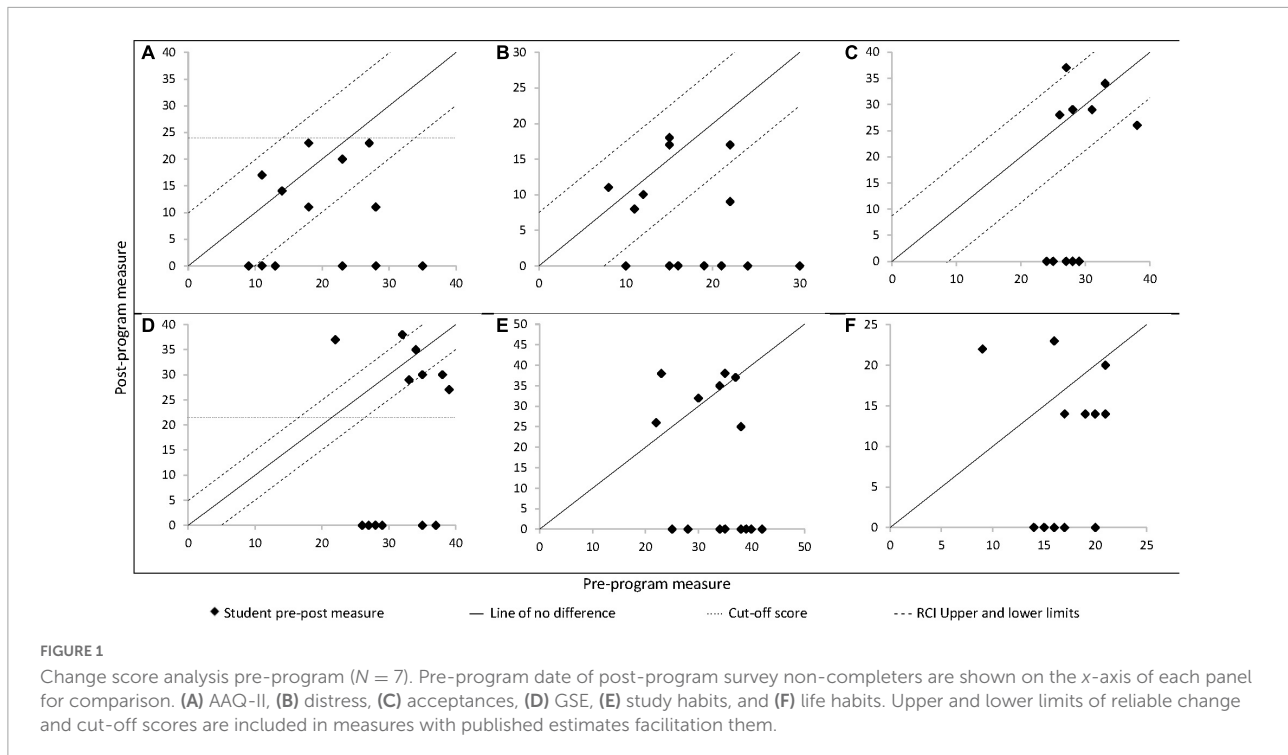
the minimum change across time that can be considered reliable, as a function of the reliability of the scale and the magnitude of variation of scores in the population ([Jacobson and Truax, 1992](#)). When published results enabled cut-off scores to be determined these were also included. Cut-off values denote the points at which a measure reflects behaviour that is more extreme and likely not to belong to the distribution of functional responses.

Figure 1 shows that most participants' measures either side of the program delivery were more or less stable. Importantly, in Panel A it can be seen that while some participants with full data had AAQ-II scores greater than the cut-off indicating psychological distress (> 24) at T1 ([Bond et al., 2011](#)), all of these individuals at T2 produced measures lower than this value, and one case showed a reliable decrease in psychological distress. Of note however, is that some non-completing participants also produced initial AAQ-II measures in the range of psychological distress. These data are consistent with the general reports of psychological distress within the student population (e.g., [Khawaja and Dempsey, 2008](#)) and highlight it as an ever-present problem.

The pattern for the distress measure in Panel B is similar to those for the AAQ-II. This is unsurprising given the high correlation between the measures (see also [Wolgast, 2014](#)). In Panel D, all post-program measures of self-efficacy remained above the cut-off value derived from population scores (less than 2 standard deviations below the mean). Thus, delivery of the program does not appear to be associated with adverse effects to those participants who provided data, with reliable changes occurring in either direction potentially a function of individual circumstances.

Qualitative feedback

A final open-ended question in the post-program survey gave students the opportunity to provide feedback and to detail their perspective as participants in the program itself. These comments identified that students had discovered important connections between their



psychological and physical states and had recognised how these connections can interfere with learning, particularly under stressful conditions.

It was a beautifully designed program that helped me uncover emotions and issues that I hadn't had the courage to understand or even look at.

The program was very valuable and provided helpful insights into things I was already relatively conscious of but wasn't explicitly aware of (e.g., the processes and more detailed components of my coping mechanisms and decision making). Although I feel I do handle my emotions and study/work/social balance relatively well, had the weekly sessions continued to be offered I would still definitely have continued attending!

Other students noted the flexibility in the program as an advantage.

I really enjoyed this program and the way that it was run. It was helpful for self recognition and reflection, and all activities were provided as optional and with varying degrees of involvement to suit each person.

I found week 4 [Workshop 1] and week 5 [Workshop 2] to be the most beneficial for me. I loved the exercises across

all of the workshops because it involved lots of introspection and I spent time thinking about and actually writing down the things that I normally just have in the back of my mind but don't ever think about. The workshops have been really beneficial for me and they quickly became the highlight of my week and something to look forward to on a Friday (and not just because of the coffee and muffins). Personally I found some of the focusing attention exercises easier than others. For example, the figure 8 exercise was a little general and I found it difficult to stop my mind from wandering. Whereas I found the tracing fingers and the 5 things I can see, 4 things I can touch... exercises were better for me because I had more to focus on. I liked that we were shown a variety of attention exercises because some of them worked for some people and it allowed us to find one that worked best for us. In the final week I actually was unable to put pen to paper for last two pages (poem and window). I really struggled with those, I think because it was difficult to think about myself that way, as someone said in the class, it's difficult to give yourself a positive description without sounding "up yourself." However I was very easily able to write about procrastination because I am quite familiar with this. I generally found it easier to focus on the negative thoughts and understand where they come from rather than focusing on positive attributes. Overall these workshops have been really beneficial and I will continue to use the focusing attention exercises in the future. I would definitely recommend these workshops to others.

Lastly, one student emphasised the practical benefit of the skills and knowledge they had learned. This observation accords with a major objective of SETTLE DOWN, that is to give students the capacity to better manage stress and to enable them to perform well across a range of domains.

The modules were very helpful in identifying areas of my life that stress me out and ways to destress when I am confronted with these situations. It was a valuable experience and would recommend it to any Uni student. Thanks for the opportunity :)

Discussion

This project sought to contribute an alternative approach to current efforts addressing the issue of student stress and attrition in HEIs; proposing a novel, approach targeting students in their first year of undergraduate studies, which was predicated on a cascading effect of stress impacting student wellbeing impacting academic performance (Cobo-Rendón et al., 2020). A psychoeducation interdisciplinary approach informed the development of the SETTLE DOWN program, which aimed to improve student self-regulation capacity and capabilities for managing their “self” within the self-regulated learning environment and the “adult” learner role, responding to the call for contextualised programs for students (Browne et al., 2017). In this paper we have outlined the theoretical rationale underpinning the SETTLE DOWN program and described the preliminary work in its development. The single cohort case study design allowed for close engagement with students during the development and piloting phases, which ensured that the SETTLE DOWN program was attuned to the collective student voice. The key purpose of piloting the SETTLE DOWN program in a face-to-face workshop format was to assess the suitability of the SETTLE DOWN material to facilitate the desired outcomes for students, i.e., foster self-awareness about their stress responses, to educate them about stress responses and self-management approaches, to offer opportunities to practice a range of management techniques and to embed self-knowledge through reflection. Additionally, identifying any potential issues (e.g., escalation of distress in response to an activity) were also in focus, to provide confidence that the program offered psychological safety. Anecdotal workshop process reflections provided insights as to how SETTLE DOWN material could be presented for maximal student engagement. The qualitative responses from the pilot testing of the program provides preliminary support for the general suitability of the program design. Importantly, the qualitative responses revealed a strong self-reflective process and emergent self-concept ponderings. Given the key mechanism of change targeted in the SETTLE DOWN program is understanding the “self” in self-regulation,

these responses are valuable and encouraging preliminary insights for program validity.

Strengths

The andragogical framework and focus on the awareness of “self” in emotion regulation that underpin the SETTLE DOWN program means it is well positioned to support students during times of stress in a demanding learning environment shaped by the pandemic. The program works from a clinical evidence base and aims to address the heightened complexity in stressors for students during the transition to university and the vulnerability students have to the overwhelm of stress. The program also seeks to provide students with a suite of tools and strategies with which to manage their experience of stress adaptively, and in order to learn that stress management can be associated with positive outcomes.

The qualitative comments from students reflect as much. Although limited, student reports suggested they were *examining emotions and issues* they had not yet had the *courage* to, were becoming *more aware of the processes* associated with coping mechanisms and decision-making, were *encouraged to self-reflect and introspect*, and were provided with *ways to actively reduce stress responses* when confronted with stress-inducing situations. This feedback is consistent with the aims of the workshops.

Limitations

Design

This case study was a single group pre-post design and therefore reflects the typical weaknesses of such an approach, in particular the lack of a control group. Further, while the pre-post trending of distress reduction of the participants in this case study and slight improvements in GSE were positive indicators of student wellbeing, the small sample size limits any assessment of direct benefits of the program. The Acceptance measure did not appear to work well with the current sample, as evidenced by reliability analysis, and therefore consideration of alternative measures is required in future research. In addition, the brief period over which these measures were taken are likely to be insufficient to identify gains. Improvements in individuals with low level distress in clinical settings are estimated to require intervention of 6–8 weekly sessions to manifest, with 1–5 weeks and > 8 weeks comparably less efficacious (Forde et al., 2005). Future research should aim to measure response variables over a time frame more likely to provide a genuine test of the efficacy of this approach. Lastly, no broader measure of either self-regulation or self-control was included to assess program influence on these constructs.

Problems of attrition/disengagement

It is notable that the face-to-face pilot experienced a drop off of attendees across the course of the program. It is also likely that students who are less certain of their capacities might feel more confronted by the content in SETTLE DOWN—at least until such time as they have begun to experience benefits from examining their stress responses more closely. This is the challenge in getting students to engage. While we currently have no empirical evidence on the relationship between grade performance and uptake of this material, it is possible that students who most struggle to progress in their studies will find the associated learning in SETTLE DOWN most uncomfortable and thus tend to avoid it. Students might also be concerned about the apparent stigma of engaging with this material. These issues likely speak to a need to thoughtfully integrate and scaffold this content into learning programs (i.e., course units) in a structured and supportive way.

Future directions

Online translation

The next stage of development in SETTLE DOWN involves development and implementation the online toolkit. With consistent evidence to support the comparable efficacy of guided self-help with face-to-face therapeutic support for depression and anxiety (Cuijpers et al., 2010; Andrews et al., 2018), a self-paced online format of SETTLE DOWN holds merit.

An online format of SETTLE DOWN can be designed to be hosted on the university's Learning Management System (LMS), using h5p interactive tools (or similar) with the addition of captions and other tools for accessibility. The h5p tools allow in-video pauses and prompts to be built in, giving students as much time as needed to work through the activities. Additional resources, such as PDF files of worksheets and further information can also be embedded into the LMS site. Four modules, corresponding with the four workshop topics, can be created to contain the workshop material and segmented into short videos of up to approximately 15 min in length. The segmentation would enable students the option of working through the entire program in sequence or selecting specific activities relevant to their self-identified needs at any given time. Tutors or other staff could also select and incorporate individual videos into their academic programs.

Translating the SETTLE DOWN program into an online format has multiple potential benefits, including flexible access to the material at any time and from any location with internet access. In addition, students could complete the program in private without necessarily alerting their peers or others. This translation would need to include appropriate supports for students, including the advice that students could stop at any time, and services students could approach in the instance they were experiencing psychological distress. This information

should be provided on the LMS site and reiterated in the introduction video for each module.

Such a development would support ongoing research to assess the effectiveness of the program with the student population. This would involve examining the evidence that uptake is associated with better stress management and corresponding changes to capacity for self-reflection in relation to emotional self-regulation and wellbeing, as these are the hypothesised intervening variables between stress and academic performance (Contreras et al., 2020). Engagement statistics would provide information regarding frequency of use of modules and/or module segments and whether particular aspects of the program are favoured. Formal research could address a number of weaknesses in the current pilot, namely the lack of control group, sample size and the disparity between the program length and post-program measurement of possible gains. More so, outcome variables could include a measures of both self-regulation (e.g., Self-Efficacy for Learning Form-A, Zimmerman and Kitsantas, 2007) and self-control (e.g., Brief Self-Control Scale, Tangney et al., 2004). Beyond this, an assessment of academic performance in relation to program adoption is necessary to provide a clear evidence base for program efficacy.

Broadening inclusion

The SETTLE DOWN project is situated within the intervention domain and provides a supported framework for students to use particularly in times of acute stress to help them to regulate their emotions and remain engaged in the learning process. The addition of a complementary program that is situated within the preventative domain and focuses on building psychological resilience of students may be the way forward in efforts to improve student retention more widely. Further developments could also include the tailoring of activities and learning experiences to individual students on, for example, the basis of trait disposition to optimise relevance and increase inclusion. Further, online access to the program is well timed and aligns with the growing use of remote delivery of mental health services and supports (e.g., the "This Way Up" initiative¹).

Conclusion

The primary teaching objective in tertiary education is to enable independent, lifelong learning in students. This demands

¹ <https://thiswayup.org.au/>

HEIs eliminate obvious roadblocks to the fulfilment of that goal. Access to university has expanded in recent decades, student preparedness has become much more variable and high levels of student stress are endemic. Environmental factors such as the disruptions to established routines caused by the pandemic have created an additional overlay on student stress levels. The case study here is one example of an attempt to develop an online availability of the necessary knowledge and skills underpinning self-awareness and self-knowledge in the context of engaging in study under stressful circumstances. Although the empirical evidence is yet to be gathered, it is argued that student development of metacognition to enable informed, conscious choices about behaviour in the study context should transfer to better navigation during stress-laden periods, as well as better academic outcomes longer-term, logically leading to corresponding improvements in retention. Furthermore, uptake of these practices should develop capacity to deal with stresses in life more generally and thus contribute to an important graduate outcome. Translation of the SETTLE DOWN workshops to an online format will enable the potential for improved reach in delivery to students. In addition, the development of the workshops into recorded segments that are focussed on particular activities and topic areas facilitates the straightforward inclusion into teaching programs as part of formal course delivery.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the Social Sciences Human Research Ethics Committee University of Wollongong. The

patients/participants provided their written informed consent to participate in this study.

Author contributions

CK and LM were responsible for SETTLE DOWN program conceptualization. CK was responsible for the development of the SETTLE DOWN workshop manual. CK, LM, ME, and CG were actively engaged in the program delivery, wrote sections of the manuscript, and reviewed the manuscript. LM analysed the data. All authors contributed to the article and approved the submitted version.

Funding

This project was supported by a 2017 University of Wollongong Teaching and Learning Strategic Fund Small Grant.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

- Agonács, N., and Matos, J. F. (2019). Heutagogy and self-determined learning: A review of the published literature on the application and implementation of the theory. *Open Learn. J. Open Distance Elearn.* 34, 223–240. doi: 10.1080/02680513.2018.1562329
- Andrews, G., Basu, A., Cuijpers, P., Craske, M. G., McEvoy, P., English, C. L., et al. (2018). Computer therapy for the anxiety and depression disorders is effective, acceptable and practical health care: An updated meta-analysis. *J. Anxiety Disord.* 55, 70–78. doi: 10.1016/j.janxdis.2018.01.001
- Beck, J. S. (2020). *Cognitive behavior therapy: Basics and beyond*. New York, NY: Guilford Publications.
- Biddle, N. (2021). *Behavioural economics and the COVID-induced education crisis*, OECD Education Working Papers, No. 254. Paris: OECD Publishing, doi: 10.1787/eba2b867-en
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., et al. (2011). Preliminary psychometric properties of the acceptance and action questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance. *Behav. Ther.* 42, 676–688. doi: 10.1016/j.beth.2011.03.007
- Brogli, E., Millings, A., and Barkham, M. (2017). The counseling center assessment of psychological symptoms (CCAPS-62): Acceptance, feasibility, and initial psychometric properties in a UK student population. *Clin. Psychol. Psychother.* 24, 1178–1188. doi: 10.1002/cpp.2070

- Brown, P. (2016). *The invisible problem? Improving students' mental health. Higher education policy institute, Report 88*. Available online at: <https://www.hepi.ac.uk/2016/09/22/3592/> (accessed February 23, 2022).
- Browne, V., Munro, J., and Cass, J. (2017). Under the Radar: The Mental Health of Australian University Students. *J. Aust. N. Z. Stud. Serv. Assoc.* 25, 51–60. doi: 10.30688/janzssa.2017.16
- Cárdenas, D., Lattimore, F., Steinberg, D., and Reynolds, K. J. (2022). Youth well-being predicts later academic success. *Sci. Rep.* 12:2134. doi: 10.1038/s41598-022-05780-0
- Cherastidtham, I., and Norton, A. (2018). *University attrition: What helps and what hinders university completion? Grattan institute*. Available online at: <https://grattan.edu.au/wp-content/uploads/2018/04/University-attrition-background.pdf> (accessed April 27, 2022).
- Cobo-Rendón, R., Pérez-Villalobos, M. V., Páez-Rovira, D., and Gracia-Leiva, M. (2020). A longitudinal study: Affective wellbeing, psychological wellbeing, self-efficacy and academic performance among first-year undergraduate students. *Scand. J. Psychol.* 61, 518–526. doi: 10.1111/sjop.12618
- Contreras, J. A., Edwards-Maddox, S., Hall, A., and Lee, M. A. (2020). Effects of reflective practice on baccalaureate nursing students' stress, anxiety and competency: An integrative review. *Worldviews Evid. Based Nurs.* 17, 239–245. doi: 10.1111/wvn.12438
- Cuijpers, P., Donker, T., Van Straten, A., Li, J., and Andersson, G. (2010). Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. *Psychol. Med.* 40, 1943–1957. doi: 10.1017/S0033291710000772
- Curcio, G., Ferrara, M., and De Gennaro, L. (2006). Sleep loss, learning capacity and academic performance. *Sleep Med. Rev.* 10, 323–337. doi: 10.1016/j.smrv.2005.11.001
- Curwen, B., Palmer, S., and Ruddell, P. (2018). *Brief cognitive behaviour therapy*. Thousand Oaks, CA: Sage.
- Denovan, A., and Macaskill, A. (2013). An interpretative phenomenological analysis of stress and coping in first year undergraduates. *Br. Educ. Res. J.* 39, 1002–1024. doi: 10.1002/BERJ.3019
- Denovan, A., and Macaskill, A. (2017). Stress and subjective well-being among first year UK undergraduate students. *J. Happiness Stud.* 18, 505–525. doi: 10.1007/S10902-016-9736-Y
- Dodd, R. H., Dadaczynski, K., Okan, O., McCaffery, K. J., and Pickles, K. (2021). Psychological wellbeing and academic experience of university students in Australia during COVID-19. *Int. J. Environ. Res. Public Health* 18:866. doi: 10.3390/ijerph18030866
- Duckworth, A. L., Taxer, J. L., Eskreis-Winkler, L., Galla, B. M., and Gross, J. L. (2019). Self-Control and academic achievement. *Ann. Rev. Psychol.* 70, 373–399. doi: 10.1146/annurev-psych-010418-103230
- Forde, F., Frame, M., Hanlon, P., MacLean, G., Nolan, D., Shajahan, P., et al. (2005). Optimum number of sessions for depression and anxiety. *Nurs. Times* 101, 36–40.
- Fruehwirth, J. C., Biswas, S., and Perreira, K. M. (2021). The Covid-19 pandemic and mental health of first-year college students: Examining the effect of Covid-19 stressors using longitudinal data. *PLoS One* 16:e0247999. doi: 10.1371/journal.pone.0247999
- Garrett, R., Liu, S., and Young, S. D. (2017). A longitudinal analysis of stress among incoming college freshmen. *J. Am. Coll. Health* 65, 331–338. doi: 10.1080/07448481.2017.1312413
- Gomathi, K. G., Ahmed, S., and Sreedharan, J. (2012). Psychological health of first-year health professional students in a medical university in the United Arab Emirates. *Sultan Qaboos Univ. Med. J.* 12:206. doi: 10.12816/0003114
- Jacobson, N. S., and Truax, P. (1992). "Clinical significance: A statistical approach to defining meaningful change in psychotherapy research," in *Methodological issues & strategies in clinical research*, ed. A. E. Kazdin (Washington, DC: American Psychological Association), 631–648. doi: 10.1037/10109-042
- Khawaja, N. G., and Dempsey, J. (2008). A comparison of international and domestic tertiary students in Australia. *Aust. J. Guid. Couns.* 18, 30–46. doi: 10.1375/ajgc.18.1.30
- Knowles, M. S., Elwood, R., Holton, R. III, and Swanson, A. (1998). *The adult learner: The definitive classic in adult education and human resource development*, 5th Edn. New York, NY: Heinemann.
- Kwan, M. Y. W., Brown, D., MacKillop, J., Beaudette, S., Van Koughnett, S., and Munn, C. (2021). Evaluating the impact of archway: A personalized program for 1st year student success and mental health and wellbeing. *BMC Public Health* 21:59. doi: 10.1186/s12889-020-10057-0
- Lazarus, R. S., and Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer publishing company.
- Lin, S.-H., and Huang, Y.-C. (2014). Life stress and academic burnout. *Act. Learn. High. Educ.* 15, 77–90. doi: 10.1177/1469787413514651
- Luszczynska, A., Gutiérrez-Doña, B., and Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *Int. J. Psychol.* 40, 80–89. doi: 10.1080/00207590444000041
- Macaskill, A. (2013). The mental health of university students in the United Kingdom. *Br. J. Guid. Couns.* 41, 426–441. doi: 10.1080/03069885.2012.743110
- Maher, M., and Macallister, H. (2013). Retention and attrition of students in higher education: Challenges in modern times to what works. *High. Educ. Stud.* 3, 62–73. doi: 10.5539/hes.v3n2p62
- Marôco, J., Assunção, H., Harju-Luukkainen, H., Lin, S. W., Sit, P. S., Cheung, K. C., et al. (2020). Predictors of academic efficacy and dropout intention in university students: Can engagement suppress burnout? *PLoS One* 15:e0239816. doi: 10.1371/journal.pone.0239816
- Mattanah, J. F., Brooks, L. J., Brand, B. L., Quimby, J. L., and Ayers, J. F. (2012). A social support intervention to ease the college transition: Does perceived loneliness mediate the relationship? *J. Coll. Couns.* 15, 22–36. doi: 10.1002/j.2161-1882.2012.00003.x
- Mattanah, J., Ayers, J., Brand, B., Brooks, L., Quimby, J., and McNary, S. (2010). A social support intervention to ease the college transition: Exploring main effects and moderators. *J. Coll. Stud. Dev.* 51, 93–108. doi: 10.1353/csd.0.0116
- Maymon, R., and Hall, N. C. (2021). A review of first-year student stress and social support. *Soc. Sci.* 10:472. doi: 10.3390/socsci10120472
- Mistler, B. J., Reetz, D. R., Krylowicz, B., and Barr, V. (2012). *The association for university and college counseling center directors annual survey*. Available online at: https://files.cmglobal.com/Monograph_2012_AUCCCD_Public.pdf (accessed April 27, 2022).
- Nerdrum, P., Rustoen, T., and Ronnestad, M. H. (2006). Student psychological distress: A psychometric study of 1750 norwegian 1st-year undergraduate students, Scandinavian. *J. Educ. Res.* 50, 95–109. doi: 10.1080/00313830500372075
- Noland, H., Price, J. H., Dake, J., and Telljohann, S. K. (2009). Adolescents' sleep behaviors and perceptions of sleep. *J. Sch. Health* 79, 224–230. doi: 10.1111/j.1746-1561.2009.00402.x
- Pascoe, M. C., Hetrick, S. E., and Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *Int. J. Adolesc. Youth* 25, 104–112. doi: 1080/02673843.2019.1596823
- Pauley, D., Cuijpers, P., Papola, D., Miguel, C., and Karyotaki, E. (2021). Two decades of digital interventions for anxiety disorders: A systematic review and meta-analysis of treatment effectiveness. *Psychol. Med.* 28, 1–13. doi: 10.1017/S0033291721001999
- Phillips, D. C., and Burbules, N. C. (2000). *Postpositivism and educational research*. Lanham, MD: Rowman & Littlefield.
- Pidgeon, A. M., and Keye, M. (2014). Relationship between resilience, mindfulness, and psychological well-being in university students. *Int. J. Lib. Arts Soc. Sci.* 2:27.
- Pierceall, E. A., and Keim, M. C. (2007). Stress and coping strategies among community college students, community college. *J. Res. Pract.* 31, 703–712. doi: 10.1080/10668920600866579
- Pitt, A., Oprescu, F., Tapia, G., and Gray, M. (2018). An exploratory study of students' weekly stress levels and sources of stress during the semester. *Act. Learn. High. Educ.* 19, 61–75. doi: 10.1177/1469787417731194
- Pluut, H., Curşeu, P. L., and Iliş, R. (2015). Social and study related stressors and resources among university entrants: Effects on well-being and academic performance. *Learn. Individ. Differ.* 37, 262–268. doi: 10.1016/j.lindif.2014.11.018
- Ricks, K. G., Richardson, J. A., Stern, H. P., Taylor, R. P., and Taylor, R. A. (2014). An engineering learning community to promote retention and graduation of at-risk engineering students. *Am. J. Eng. Educ.* 5, 73–90.
- Rudland, J. R., Golding, C., and Wilkinson, T. J. (2020). The stress paradox: How stress can be good for learning. *Med. Educ.* 54, 40–45. doi: 10.1111/medu.13830
- Saleh, D., Camart, N., and Romo, L. (2017). Predictors of stress in college students. *Front. Psychol.* 8:19. doi: 10.3389/fpsyg.2017.00019
- Scholz, M., Neumann, C., Wild, K., Garreis, F., Hammer, C. M., Ropohl, A., et al. (2016). Teaching to relax: Development of a program to potentiate stress—Results of a feasibility study with medical undergraduate students. *Appl. Psychophysiol. Biofeedback* 41, 275–281. doi: 10.1007/s10484-015-9327-4
- Schwarzer, R., and Jerusalem, M. (1995). "Generalized self-efficacy scale," in *Measures in health psychology: A user's portfolio. causal and control beliefs*,

- eds J. Weinman, S. Wright, and M. Johnston (Windsor: NFER-NELSON), 35–37.
- Seligman, M. E. P., and Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *Am. Psychol.* 55, 5–14. doi: 10.1037/0003-066X.55.1.5
- Selye, H. (1976a). “Stress without distress,” in *Psychopathology of human adaptation*, (Boston, MA: Springer), 137–146.
- Selye, H. (1976b). Forty years of stress research: Principal remaining problems and misconceptions. *Can. Med. Assoc. J.* 115, 53–56.
- Selye, H. (2013). *Stress in health and disease*. Oxford: Butterworth-Heinemann.
- Sosu, E. M., and Pheunpha, P. (2019). Trajectory of university dropout: Investigating the cumulative effect of academic vulnerability and proximity to family support. *Front. Educ.* 4:1–10. doi: 10.3389/feduc.2019.00006
- Suhlmann, M., Sassenberg, K., Nagengast, B., and Trautwein, U. (2018). Belonging mediates effects of student-university fit on well-being, motivation, and dropout intention. *Soc. Psychol.* 49, 16–28. doi: 10.1027/1864-9335/a000325
- Tangney, J. P., Baumeister, R. F., and Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *J. Pers.* 72, 271–324. doi: 10.1111/j.0022-3506.2004.00263.x
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *Rev. High. Educ.* 21, 167–177.
- Wolgast, M. (2014). What does the acceptance and action questionnaire (AAQ-II) really measure? *Behav. Ther.* 45, 831–839. doi: 10.1016/j.beth.2014.07.002
- Yerkes, R. M., and Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *J. Comp. Neurol. Psychol.* 18, 459–482. doi: 10.1002/cne.920180503
- Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educ. Psychol.* 25, 3–17. doi: 10.1207/s15326985ep2501_2
- Zimmerman, B. J., and Kitsantas, A. (2014). Comparing students’ self-discipline and self-regulation measures and their prediction of academic achievement. *Contemp. Educ. Psychol.* 39, 145–155. doi: 10.1016/j.cedpsych.2014.03.004
- Zimmerman, B. J., and Moylan, A. R. (2009). “Self-regulation: Where metacognition and motivation intersect,” in *Handbook of metacognition in education*, eds D. J. Hacker, J. Dunlosky, and A. C. Graesser (London: Routledge), 299–315.
- Zimmerman, B., and Kitsantas, A. (2007). Reliability and validity of self-efficacy for learning form (SELF) scores of college students. *J. Psychol.* 215, 157–163. doi: 10.1027/0044-3409.215.3.157