

## **Pedagogical approaches to support student resilience in higher-education settings: A systematic literature review**

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### **Abstract**

In recent years, Higher education (HE) students have continued to report rising rates of anxiety, depression and stress. One strategy employed to address these developments has been providing educational and administrative services that help to support and promote student resilience. Efforts to improve student resilience in HE may be bolstered by programs and strategies that go beyond traditional healthcare service delivery: for instance, initiatives such as in-course pedagogical approaches which target enhancing student resilience awareness and understanding. This systematic review aimed to identify, analyze, and synthesize the essential characteristics and programmatic features (e.g., methods) of pedagogical approaches (i.e., teaching strategies, curricula or other features) designed to support resilience among students in HE contexts. Searches were carried out in ERIC, PsychINFO, and SCOPUS and returned 1,545 results. Ultimately, thirty-five articles were included in the final synthesis. A three-level thematic analysis of the included thirty-five articles was conducted, in order to develop rigorous and consistent analytical themes. The five analytical themes that were subsequently developed included: 1) resilience education: reflection, understanding, awareness; 2) individual strategies: personal skill development; 3) institution- or department-level: structural, curricular opportunities; 4) interpersonal strategies: relational skill development; and 5) learning community: cohesion, integration, resource awareness. The implications and effectiveness of these themes for HE instructors are discussed.

### **1 Introduction**

Trends in higher education (HE) contexts from multiple countries suggest that student mental health issues represent, arguably, one of the foremost challenges that institutions of higher learning must contend with. For instance, in Canada, approximately 44% of students reported that within the last twelve months they have felt so depressed it was hard to function (American College Health Association, 2016); in the United States (US), 62.3% of students reported feeling overwhelming anxiety within the last twelve months (American College Health Association, 2018); in Australia, 83.9% of students reported elevated distress levels (Stallman, 2010); and, in the United Kingdom (UK), 50.3% of students reported some thoughts of self-harm and 42.8% reported that they were often or always worried (The Insight Network, 2019). Such developments highlight the necessity for establishing cost-effective approaches that enhance the mental health of university students, especially strategies which not only ameliorate present conditions but can prevent against future problems. One such approach increasingly being studied in HE is resilience, or the process of one's positively responding to adversity or trauma through utilizing a combination of personal and environmental resources (Windle, 2011).

Recent scholarship has documented the potential of resilience with respect to assisting students and professionals in overcoming academic challenges and managing personal health (Reyes *et al.*, 2015), as well as aiding in professional development (Sanderson and Brewer, 2017). However, while research into resilience in HE contexts is ostensibly growing, the concept remains somewhat misunderstood, as it has often been unclearly defined, conceptualized in a variety of different manners (e.g., maintaining well-being, surviving and thriving) and applied to multiple cohorts (e.g., private sector groups, education groups) (Brewer *et al.*, 2019). To improve precision in HE contexts, this review examines the design and application of resilience-supporting pedagogical approaches (e.g., course set-ups, curricula, teaching strategies) specifically for HE students to outline better the ways in which such programs, implemented as either curricular or co-curricular initiatives, may promote resilience among this cohort.

### 1.1 Conceptualising resilience and its relevance to university students

Resilience remains a somewhat unclear concept, owing to its being defined in multiple ways (Windle, 2011). While common conceptualizations of resilience make reference to one's returning to a pre-existing level of functioning after experiencing some form of stressor, the notion has been denoted as a broader concept pertaining to one's adaptation to stress (Friborg *et al.*, 2009). In HE research, it has been suggested to be a process of *positive* adaptation in response to adversity (Brewer *et al.*, *op.cit.*). For the purposes of this review, a more comprehensive definition of resilience will be used and, in particular, Windle's (2011, p.12) overview, which defines resilience as:

“... the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and ‘bouncing back’ in the face of adversity.”

In the HE context, students' perception of stressors and their capacity to manage effectively the challenges associated with their educational endeavors can be critical to their overall academic success and well-being. Students report a number of potential stressors, including academic pressure, family instability, financial worries and social challenges (Beiter *et al.*, 2015). Stress during this time can be exacerbated by the transition from adolescence into early adulthood, a period during which an individual lacking the necessary coping skills could experience additional stressors as a result of having not solidified personal identities, attitudes and values (London *et al.*, 2011). Consequently, resilience is not only associated with self-esteem, which can be even more important for students with learning disabilities (Ghisi *et al.*, 2016), but also students lower in resilience, or those who are stressed or not coping well with their learning, have also been found to require more teaching time and educational resources (Lake and Ryan, 2005). As resilience has been associated with prospective academic attainment (Allan *et al.*, 2014), lower stress, better self-regulation, improved coping with stressors and positive emotional well-being (Leary and DeRosier, 2012), pedagogical approaches which aim to support resilience represent an important opportunity to affect students both significantly and positively.

## 1.2 Programs to support students' psychological well-being and resilience in HE

Multiple intervention methods have been implemented to address student resilience, including cognitive behavioral therapy (CBT), relaxation responses and stress management techniques (Regehr *et al.*, 2013). Attempts to mitigate anxiety in university-aged populations have, in recent years, seen a similar rise in development, usage and evaluation, with mindfulness-based initiatives being among the most notable approaches (Bamber and Kraenzle Schneider, 2016). Scholarship investigating resilience-focused programs in other contexts related to HE have also used a variety of approaches, including initiatives ranging from targets for workforce preparedness (Sanderson and Brewer, 2017), to learning leadership (McAllister and McKinnon, 2009), to training students' reflective abilities (Grant and Kinman, 2012). However, despite this growth in intervention styles and relative to previous cohort trends, current generations of HE students have tended to struggle significantly more with certain aspects of their mental health and resilience (e.g., stress management) (Bland *et al.*, 2012). Accordingly, the demand among university populations for mental health and resilience services has seen a marked increase in recent years (Center for Collegiate Mental Health, 2017), suggesting that resilience-focused pedagogy approaches (i.e., those which go beyond traditional service-oriented programs) could play an important role in helping to address these trends.

## 1.3 Research question and aim

Relevant contemporary reviews examining the concept of resilience have assessed the definitional and methodological characteristics of the concept, outlined the extent and nature of resilience-oriented interventions (Brewer *et al.*, 2019) and investigated the effectiveness of stress-reducing interventions targeted at students in HE (Yusufov *et al.*, 2019). This review aims to complement these existing works by chronicling the essential characteristics and programmatic features (i.e., methods, designs and essential characteristics) of pedagogical approaches (i.e., teaching strategies, curricula or other features) designed to support resilience among students in HE contexts. The review was guided by the following research question: "What are the methods, strategies and defining (essential) characteristics of teaching approaches, course curricula or other course-based approaches used in HE to support psychological resilience among students?" The 'PICOC' model of Petticrew and Roberts (2006) was used to operationalize this question for the systematic literature search: *Population*: students in HE populations (e.g., undergraduate, graduate, medical students); *Intervention*: any course curriculum, educational activity, instructional strategy etc. that fosters or supports resilience; *Comparison*: none; *Outcome*: psychological, educational, leadership resilience; *Context*: any (e.g., workshop, group setting, online etc.). The aim of this paper is therefore to identify, thematically synthesise and delineate the state of pedagogical initiatives used in studies examining student resilience in HE.

## 2 Methods

### 2.1 Search strategy

The search outline below (table 1) was carried out in three online databases: ERIC, PsychINFO, and SCOPUS. These three databases were selected to ensure that relevant articles were

included from educational (ERIC), psychological (PsycINFO) and other social science (SCOPUS) contexts. In accordance with the operationalized research question, the complete search strategy developed and implemented for this review contained three general concepts (resilience, teaching strategy, course design) for which lists of relevant terms were developed. Search results were current as of May 17, 2021.

**Table 1.** Search strategy conceptualization and terms

Concept	Search Terms
Psychological/educational resilience	“learner resilience” OR “psychological resilience” OR “pupil resilience” OR “resilience” OR “student resilience”
	<b>AND</b>
Teaching strategy	“coaching” OR “education” OR “educational activit*” OR “method” OR “strategy” OR “teaching” OR “teaching method” OR “teaching strategy” OR “training”
	<b>OR</b>
Course design	“awareness” OR “capacity” OR “competence” OR “didactic*” OR “instruction” OR “literacy” OR “pedagogy” OR “pedagogics” OR “study”
<b>Search notes:</b> ERIC search was a title search; PsychINFO search was a title search with a peer-review filter on; and the SCOPUS search was a title, keyword, abstract search.	

## 2.2 Eligibility criteria

Five inclusion/exclusion criteria were applied during the search and vetting processes of this review. The criteria stipulated that each article must: 1) contain an explicit and primary focus on student resilience (i.e., not a brief mention or peripheral aspect of a discussion, or a paper focusing on practitioner resilience or preparedness); 2) contain a discussion or analysis of a teaching, pedagogical or other course design strategy or method; 3) be written in reference to students or their equivalents (e.g., medical residents) who are in HE (i.e., not professionals, practitioners etc.); 4) be a research article (i.e., not an educational report, bulletin, commentary etc. or dissertation/thesis); 5) contain some evaluation component (i.e., not only a feasibility study or proposal manuscript); and 6) be written in English. Conversely, there were no bounds placed on geography, publication year or discipline.

## 2.3 Study selection

A total of 1,545 results were returned across ERIC (269), PsycINFO (997), and SCOPUS (279). Initial title and duplicate screens resulted in the discarding of 994 potential articles. Next, the screening of abstracts removed an additional 386 potential manuscripts. Each of the 165 outstanding articles then underwent a full-text assessment, during which 144 titles were excluded, leaving 21 articles. The most common reasons for paper exclusions during the full-text assessments were a lack of a clear or explicit student resilience outcome/focus (e.g., physician or instructor resilience), a lack of a described program or method included in the paper (e.g., conceptual outline of resilience), a lack of an evaluation component (e.g., proposed

curriculum with no examination) and resilience being examined in a non-HE context (e.g., grade school, community setting). Reference list checks of included studies added 14 articles to the synthesis. Eventually 35 articles were included and thematically analysed in the final synthesis.

### 2.4 Data extraction, coding

Given the multi-disciplinary nature of this review, the analysis (i.e., synthesis of included papers) was conducted through adapting the guideline of Thomas and Harden's (2008) thematic synthesis for systematic review approach. The first stage, line-by-line coding of text, was carried out as described with line-by-line coding being completed for each of the 35 included papers. Coding was completed via applying labels throughout the articles to the text that represented relevant ideas, principles and concepts. Importantly, the inductive coding strategy applied for this review corresponded to the general concepts of the paper's research aim (i.e., text relevant to delivery methods, designs, essential characteristics and resources of student resilience programs was coded) and ultimately resulted in the generation of 72 first-level codes. For the second stage, the development of 'descriptive themes', the first-level codes were grouped together into larger descriptive, aggregate categories (second-level descriptive themes) based on common strategies, goals and implementation aspects. During this stage, 12 second-level descriptive themes were developed. In the third and final stage, the generation of 'analytical themes', the second-level descriptive themes were merged into analytical themes based on their relevant primary functions (e.g., skills-based, education-based) and defining qualities (e.g., level of intervention: policy/course, community, interpersonal, individual). From this process, five analytical categories were developed and were expounded in the ensuing synthesis section.

### 3 Synthesis

Although the analysis methods resulted in papers' being coded for their germane methods, designs and characteristics, only results of the most relevant codes are presented in the synthesis. To wit, not every feature of each program will be explicitly discussed, as some were only tersely explained in their corresponding articles; thus, the most illustrative examples are presented as a consequence of their being the most representative of their respective theme's essence. Also of note, some of the programs, owing to their approach, were coded and had certain aspects relevant to the discussions of multiple themes (i.e., some interventions will be noted in multiple results themes). Regarding general characteristics, geographic locations of the studies included one from Asia (3%), five from Europe (14%), 23 from North America (i.e., Canada, US; 66%) and six from Oceania (17%). Disciplinary contexts for the programs included nine that were multi-disciplinary or drew from a multi-disciplinary student sample, six in medicine (e.g., psychiatry) or a related health science area (e.g., kinesiology, physiotherapy), four in nursing, seven in the social sciences or humanities (e.g., education, psychology) and one in another discipline (minerology). Nine articles were unclear about disciplinary context.<sup>1</sup> The delivery methods of the programs contained a fair level of variety, with the foremost method being in-person (e.g., workshop, course), followed by online and mobile methods (e.g., computer, app), and then multi-modal (see 'supplemental materials' for list). The five analytical

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<sup>1</sup> This total is 36, one more than the 35 papers in the review, as a result of the Robinson *et al.* article reporting two studies with two different samples (one psychology, one multi-disciplinary).

themes developed were: 1) education: reflection, understanding, awareness; 2) individual strategies: personal skill development; 3) interpersonal strategies: relational skill development; 4) policy: structural, curricular opportunities; and 5) community: cohesion, integration, resource awareness (see table 2).

**Table 2.** Resilience strategies/approaches for students in HE, organized according to theme

	Theme	# of Codes
<b>Program, Approach, Strategy</b>	Resilience Education: Reflection, Understanding, Awareness	21
	Individual Strategies: Personal Skill Development	20
	Institutional or Department-Level: Structural, Curricular Opportunities	13
	Interpersonal Strategies: Relational Skill Development	12
	Learning Community: Cohesion, Integration, Resource Awareness	6

**Notes:** Themes are listed in descending order (i.e., from most- to least-prevalent) according to the number of contributing relevant first-level codes identified across the 35 articles. As noted in section 2.4, codes were then aggregated to develop the descriptive themes which were subsequently combined to develop the final themes.

### 3.1 Resilience education: reflection, understanding, awareness

Resilience support for students in HE most often took the form of strategies related to education. Such educational programming, both curricular and co-curricular in delivery, was unique in that it is bounded by the common denominator of having a foremost focus on an edification quality regardless of delivery level, which was unlike other themes that shared a particular level (e.g., individual) and quality (e.g., skill development). These education programming approaches, which featured in a range of strategies from targeted standalone interventions to course/program milestones, can be broken down into three subthemes: reflection, conceptualization/understanding and framing, and acceptance and awareness. While seemingly more of a complementary feature in many of the analysed studies, reflection-based strategies were a consistently employed method that encouraged student contemplation and introspection in furtherance of building resilience. Such strategies included journal reflection activities to facilitate students' commenting on personal and social connections (Daniels *et al.*, 2015), reflective writing assignments that instructed students to contemplate their strengths and how they could apply them in other contexts (Dresen *et al.*, 2019), reflection and inquiry periods to aid in meditation-related to study (Galante *et al.*, 2018) and reflection exercises to contemplate received resilience-messaging (Stephens and Gunther, 2016). A broader reflection intervention characteristic was also noted in a 'self-reflective objective' within a leadership curriculum which sought to train students to become more adept at knowing their strengths and weaknesses, engage in continual personal development and become emotionally intelligent (Goertzen and Whitaker, 2015).

Educationally focused initiatives also frequently included methods which emphasized individual conceptualization/understanding tasks and framing strategies related to resilience. Regarding framing techniques, the ABCDE thinking model (activating event; belief about activating event; consequence, feelings, and behavior in response to belief; disputing disempowering beliefs, creating empowering interpretations; energy to handle activating event) was applied in a multiple programs to promote using empowering interpretations (Dolbier *et al.*, 2010; Gerson and Fernandez, 2013; Robinson *et al.*, 2021; Steinhardt and Dolbier, 2008). Similarly, another program applied comparable framing techniques in an adaptive response learning initiative, outlining, among other things, the self-perpetuating cycle between feeling overwhelmed and responding maladaptively, the impacts of a pessimistic coping style (e.g., self-fulfilling prophecy), getting perspective (considering worst, best, realistic outcomes) and de-catastrophizing (Gerson and Fernandez, 2013).

Considering conceptualizing resilience, a few different methods and materials were used to teach students about how to understand the concept. In one multi-method workshop, Lego Serious Play (metaphorical understandings of resilience), concept-mapping (making connections between ideas, barriers, strategies related to resilience) and group discussions regarding fixed-mindset vs. growth-mindset were all used to broaden students' comprehension of resilience (Anthony *et al.*, 2017). Two other efforts to improve students' thinking about resilience included: 1) a hardiness course initiative (i.e., resilience under pressure, ability to turn stressful circumstances into growth opportunities) that provided classes about both the conceptualization of hardiness and research supporting hardiness (Maddi *et al.*, 2009); and 2) a 'relaxation response to resilience' program which administered group sessions and a workbook presenting positive perspective-taking and meaning-finding practices (Chaukos *et al.*, 2018).

Acceptance and awareness methods were additionally featured techniques among the educationally oriented initiatives. In several instances, these strategies sought to raise awareness of protective factors or acceptance of one's current circumstances or outcomes as means to build constructive coping mechanisms. To this end, a multimedia intervention started each session with a 'stress briefing', to inform participants of the importance of maintaining healthy habits (Rose *et al.*, 2013); an app-based program provided students with a number of audio-guided meditations about acknowledging thoughts and being mindful of feelings (Reyes *et al.*, 2015); and a biopsychosocial intervention taught students about the physiology of breathing, the effects of breathing on stress and vice versa, the process of diaphragm breathing, and help-seeking behaviors (Robinson *et al.*, 2021). Similarly, other programs tended to raise awareness by bringing to light the ubiquity of adverse experiences and promote acceptance of the events one has experienced as a healthful coping strategy. One workshop session for medical students, through having a facilitator share personal shame stories (Bynum IV *et al.*, 2020), discussed the concept of the psychology of shame and guilt that health professionals often deal with, while another intervention used group sessions to have students discuss shared problems in an effort to build solidarity (Houston *et al.*, 2017). Last, a combined CBT, positive psychology (PP), and performance psychology program sought to improve students' cognitive awareness of personal stressors through such teaching strategies as time management, arousal monitoring and coping statements based on strengths and past experiences (Delany *et al.*, 2015).

### 3.2 Individual strategies: personal skill development

Support for student resilience was likewise often targeted through programs seeking to develop personal skills. Like education programs, the scope of individual skill development initiatives can be broken down into discrete subthemes: coping, stress management, and mindfulness skill-building methods; and personal autonomy, taking control, and leadership/initiative skill-building methods. With respect to the former, a general set of therapeutic and self-care approaches seemed to emerge, with some variation depending on the target audience. Techniques prescribed for medical students included loving-kindness meditation, Tonglen attitude/breathing practices (Bird *et al.*, 2020) and behavioral strategies to address commonly held thought distortions (Chaukos *et al.*, 2018); for undergraduates, mindful walks and eating, habit-breaking (Galante *et al.*, 2018), breathing, imagining, meditating and muscle awareness relaxation (Maddi *et al.*, 2009) strategies were taught; while nursing students participated in role-playing activities and engaged in workplace empowerment and disempowerment strategies (Pines *et al.*, 2014), as well as mindfulness practices encouraging focused attention on observing emotions and thoughts (Van der Riet *et al.*, 2015). Alternatively, some programs focused on enhancing personal organization skills such as a seminar-based initiative for psychology undergraduate students, which emphasized developing realistic expectations, balance, connectedness and complementary strategies of positive self-talk, stress-management and taking-action concepts (Stallman, 2010). Other relevant examples included: a multimedia intervention which promoted thought (e.g., weighing evidence, compartmentalization) and action (e.g., effective communication, problem-solving) skill-development activities (Rose *et al.*, 2013); and a mindfulness-based initiative which featured lessons focused on teaching skills to address thought traps (Lee and Mason, 2019).

Autonomy- or agency-promoting approaches consistently featured among the programs designed to enhance individual skills related to resilience. Relatively more direct approaches comprised: academic literacy programming sessions teaching academic writing, reading and argument-construction skills to improve student autonomy regarding learning habits (Donovan and Erskine-Shaw, 2020); teaching and discussion sessions that encouraged student responsibility for managing stressful situations through problem-focused (e.g., active coping, planning) and emotion-focused (e.g., behavioral disengagement) coping strategies (Dolbier *et al.*, 2010; Steinhardt and Dolbier, 2008); and cognitive control development strategies like SMART goals (specific, measurable, achievable, realistic, time-bound) and planning techniques (e.g., written time-linked checklists) (Robinson *et al.*, 2021). Broader initiatives, meanwhile, featured a multi-modal (face-to-face, blended, online) leadership education intervention, which trained students' leadership capacities such as the ability to introduce change and persistence in achieving the identified change (Goertzen and Whitaker, 2015), and a social emotional learning (SEL) program that employed hands-on learning activities to support student autonomy through encouraging academic curiosity, self-awareness of material and positive engagement with course material in a science, technology, engineering and mathematics (STEM) class (Elmi, 2020). Finally, cognitive control techniques, such as recognizing locus of control, time management and focusing on the process of learning versus outcome of learning, were also taught to enhance autonomy (Delany *et al.*, 2015).



### 3.3 Institution or department-level: structural, curricular opportunities

Student resilience was also supported through interventions that took top-down or structural approaches which reimagined course conception or curricular designs. Although fewer in number, these approaches usually constituted multiple complementary methods. Significant structural program changes were seen in one medical school's redesigning its curriculum to reduce stress and burnout through implementing a series of complementary initiatives comprising: changing to an honors/near honors/pass/fail grading system, instituting longitudinal electives, establishing multiple learning communities and reducing contact hours across the first two years (Slavin *et al.*, 2014). In course-based initiatives, a social work class redesigned its curriculum to provide opportunities to develop multi-literacies (i.e., collaborative literacy activities and skill development), training regarding threshold concepts (i.e., core ideas or processes that aid in navigating information environments) and instruction which emphasized student learning capabilities/concepts over tools/resources to stimulate higher-order critical thinking skills, resourcefulness skills and coping mechanisms (Bingham *et al.*, 2017). A curricular initiative for nursing students applied a problem-based learning model centered on ethics and ethical theories and offered students tutorials, expert talks, ethics skills training and domain-specific lectures to strengthen their resilience (Monteverde, 2014). Other comparatively smaller approaches included: a group pedagogy course that employed relational resilience teaching methods (e.g., mutuality, empathy and mutual growth) (Gilmore *et al.*, 2019); multi-week adventure education programs that exposed participants to different mental and physical tasks to develop leadership and psychological resilience (Ewert and Yoshino, 2011; Neill and Dias, 2001); and service learning projects which had students frame and research an issue, develop a lecture and subsequently teach the lecture to elementary school pupils in support of developing persistence (Daniels *et al.*, 2015).

### 3.4 Interpersonal strategies: relational skill development

Development of students' interpersonal skills were employed in a few resilience programs, with competency training related to communication and building social connections being most common. Germane approaches covered compassionate listening training, instruction for finding meaning (Bird *et al.*, 2020), goal clarifying in interpersonal situations and balancing interpersonal objectives skills (Lee and Mason, 2019), social interaction promotions for students studying abroad (Dresen *et al.*, 2019) and sessions teaching students about creating meaningful connections and how decisions to maintain being a part of or withdrawing from social networks can affect behavior and health (Dolbier *et al.*, 2010; Steinhardt and Dolbier, 2008). Another relevant approach consisted of methods targeting positive interpersonal engagement strategies. This was seen in a hardiness training program which taught students how to engage in socially-supportive interactions (e.g., giving and getting assistance and encouragement as opposed to destructive competition) (Maddi *et al.*, 2009), a nursing resilience program which taught problem-solving and conflict-management skill development (e.g., teamwork training) (Pines *et al.*, 2014) and a peer-mentoring program which employed conflict resolution competency training for mentors (Fried *et al.*, 2018). Two additional initiatives in this context were a daily-acts-of-kindness program that sought to reduce social interaction anxiety through instructing students to complete daily acts of kindness (Shillington *et al.*, 2021) and a sandplay therapy

(i.e., 'free and protected' space for individuals to create physical manifestations of their imaginations using sand, water and objects) initiative, which had students engage in structured group sandplay activities to build communication/social skill capacities (Wang *et al.*, 2017).

### **3.5 Learning community: cohesion, integration, resource awareness**

Community-level approaches and characteristics were occasionally used in programs to support student resilience. Examples generally reflected efforts to promote social cohesion and integration, or awareness of institutional resources. In pursuit of these goals, one illustrative intervention developed a self-help resilience workbook for undocumented students and included materials related to both integration (e.g., undocumented student testimonial about the value of social support) and resource awareness (e.g., links for online support resources at host university) (Kwon *et al.*, 2020). A couple of more targeted interventions leveraged extant community-level resources and networks to enhance integration: one tasking senior-level student mentors to guide first-year students in dealing with stressors and providing them with support (Fried *et al.*, 2018) and another utilizing a peer-coaching program approach to aid graduate students in developing their coping abilities (Fried *et al.*, 2019). Other approaches were generally broader in their execution: one conducting supportive messaging for nursing students through Twitter (Stephens and Gunther, 2016) and one a social and emotional learning (SEL) curriculum providing a series of strategies to help students identify appropriate social resources and supports (Elmi, 2020).

## **4 Discussion**

Supporting resilience in HE students through pedagogical initiatives represents an important and significant opportunity to address some of the myriad factors contributing to the rising rates of mental health issues among those in this cohort, as well as offer additional strategies to help individuals persist in their new academic endeavours. The aim of this review was to document and synthesize the characteristics and programmatic features of pedagogical approaches designed to support resilience among students in HE contexts. Central findings of this review's synthesis include a significant array of approaches employed to address resilience, specifically a considerable focus on resilience-awareness and conceptualization, individual skill development and interpersonal strategies.

The foremost results of this review suggest that supporting student resilience in HE is ostensibly a variable endeavour, as a collection of different approaches, methods and resources were used. More pointedly, student resilience in HE is being approached as a multi-level and/or multi-component issue, similar to findings from related areas, such as mental health promotion in HE (Conley *et al.*, 2013). Alternatively, this diversity of approaches could also suggest that HE interventions for student resilience seem to recognize the concept in a manner that generally accords with Windle's (2011) definition in that various methods pertaining to negotiating, adapting to or managing aspects of responses to and experiences of adversity were addressed. For instance, 'managing' strategies was recognized through the organizational skills taught to students (Delany *et al.*, 2015), 'adapting' strategies through the various mindfulness skills taught (Galante *et al.*, 2018), and 'negotiation' strategies through the use of the framing techniques taught (Steinhardt and Dolbier, 2008). The use of a variety of strategies may be advisable for

building resilience among this cohort as student understandings of the concept outline an understanding premised on maintaining perspective (e.g., self-reflection, goal-setting), staying healthy (e.g., physical and mental health) and developing support networks (e.g., peers, family) (Holdsworth *et al.*, 2018). Considering this potential alignment, there is good reason for multi-component or multi-level interventions to be developed and evaluated in future study, even though evidence of their widespread use and efficacy may still be lacking (Brewer *et al.*, 2019).

A significant focus on skill development – and importantly those skills related to potential future professional tasks (e.g., conflict-management, communication, role-playing scenarios) and academic skills (e.g., multi-literacy training, writing training) – was consistently present in the results. Subthemes among these findings, such as personal autonomy, taking control and social support in relation to individual and interpersonal skill development have been found to be important factors in other academic domains, including academic motivation (Hensley *et al.*, 2021) and developmental transitions (e.g., high school to university) (Dvořáková *et al.*, 2017). Such skills training seems to be of significant value for academic success and resilience; however, a number of the programs included in this review appeared to draw on additional instruction or expertise from a larger research team (e.g., mindfulness training, co-active life-coaching expertise) – expertise that many individual instructors likely lack in the context of a one-teacher classroom setting. The implications of this may be twofold. First, more universal educational methods for instructors to support student resilience (e.g., student learning approach perspective guidance, see next section) could be developed. And second, combining the growth and accessibility of CBT (e.g., Macklem, 2010) and PP (Wade *et al.*, 2015) training resources, instructors in HE could be encouraged to develop competencies in these areas to support integrating these resilience materials and resources in their courses.

Resilience programs for students in HE also contained a strong proclivity toward preventive and protective sentiments, most often targeted at the individual or interpersonal levels. An important implication of this is that policy- and community-level programs appear to be comparatively less evaluated and, consequently, that there are a number of important specific aspects that require further study if such strategies are to become more effective. For instance, determining key characteristics or competencies that relevant staff and group member co-facilitators should possess (Kwon *et al.*, 2020), implementation process and longitudinal evaluations (Elmi, 2020; Fried *et al.*, 2018) and examinations of program efficacy with inter-disciplinary samples (Daniels *et al.*, 2015). Although these developments may be partially owing to feasibility considerations related to implementation, budgets or timelines, structural approaches to promoting student resilience seem vital, given the noted rise in demand among university students for mental health and resilience programs (Center for Collegiate Mental Health, 2017). To this end, documented programs in this review suggest there is potential on this front as, for instance, Slavin *et al.*'s (2014) medical school curricular restructuring illustrates an effective large-scale approach consisting of considerable changes to course marking procedures, student interaction and course offerings. Future study could consider implementing and evaluating additional potential larger-scale structural, curricular or community initiatives (e.g., resilience modules in course design, peer coaching/mentoring, course resilience workbooks) to support student resilience.

## 4.1 Program effectiveness and implications for practitioners, HE Instructors

Findings of this review may likely be of most value to instructors in HE when considering pedagogical approaches targeted at the individual and interpersonal levels. In particular, methods of instruction that counteract the either tacit or explicit suggestions of course learning as a discrete outcome and, instead, seek to emphasize the importance of various aspects that comprise a larger processual experience of learning appear advisable. Promising results related to resilience development were found in relation to several such programs. Examinations of the ABCDE model for promoting empowering interpretations of experiences or events reported significant improvements in self-esteem and stress-related growth (Dolbier *et al.*, 2010), as well as significantly higher student resilience scores and more effective coping strategies (e.g., self-leadership) (Steinhardt and Dolbier, 2008). Multi-component educational interventions featuring mindfulness meditation and planning techniques also noted significant improvements with respect to lowering experimental group levels of trait neuroticism (Robinson *et al.*, 2021), reducing psychological distress and improving well-being (Galante *et al.*, 2018). Lectures on de-catastrophizing (i.e., reducing catastrophic thinking and anxiety; Dattilio, 2000<sup>2</sup>) and active problem-solving strategies (e.g., thinking about what one could do better next time) (Gerson and Fernandez, 2013), as well as seminars featuring taking action concepts (e.g., <https://www.apa.org/topics/resilience><sup>3</sup>) (Stallman, 2010), are other strategies that have reputed effectiveness with respect to positive behavioral change.

Pedagogical methods aiming to support autonomy or agency with respect to resilience and academic adversity represent an additional set of potentially effective strategies that instructors may implement. In this review, there were a few documented examples of effective autonomy- and agency-oriented instructional methods, including initiatives featuring the use of SMART goals (specific, measurable, achievable, realistic, time-bound) which significantly improved self-esteem (Robinson *et al.*, 2021), as well as techniques for recognizing locus of control (i.e., events can be determined by one's behavior) and time management which were qualitatively suggested to have successfully increased confidence and cognitive control (Delany *et al.*, 2015). Other effective interventions saw significant improvements with respect to problem-solving and coping abilities through hardiness initiatives (e.g., hardiness in-class lectures, workbook) (Maddi *et al.*, 2009), and more perceived control over stress via a self-guided multimedia intervention (e.g., stress management coach videos) (Rose *et al.*, 2013). It should be noted, however, that while the effectiveness of some techniques were observed, other strategies in this regard were more uncertain. For instance, mixed results pertaining to stress resilience development through conflict management training (Pines *et al.*, 2014) and coping skill enhancement after a resilience curriculum (Chaukos *et al.*, 2018) were reported. Other approaches such as SEL strategies (Elmi, 2020) and focus group mindfulness methods (Van der Riet *et al.*, 2015) also only reported more descriptive or qualitative results that lacked insights regarding generalizable program effectiveness.

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<sup>2</sup> Example educational resource: <https://www.therapistaid.com/therapy-worksheet/decatastrophizing> (Accessed: September 11, 2021).

<sup>3</sup> Website was given as a reference in the intervention paper which utilised the resource; however, the intervention didn't elaborate on the specifics of the resource which were implemented.

As a number of the discussed interpersonally- and autonomy-based strategies can potentially require certain competencies or additional resources that some instructors may not possess (e.g., mindfulness training, coping strategy guidelines), other potential methods may be implemented. In furtherance of incorporating resilience-focused content into HE instruction, this review did identify a few relatively simple and effective behavioral changes that instructors can promote to their students. Notably, support was documented for the effectiveness of techniques including providing instruction for finding meaning (e.g., avoiding wasting energy on trying to control what is beyond a student's to control), thought activities (e.g., weighing evidence,<sup>4</sup> compartmentalization) (Rose *et al.*, 2013), promoting compassionate listening (e.g., reminding students of the importance of being there for each other, acknowledging each other's' experiences) (Bird *et al.*, 2020), and socially-supportive interactions (e.g., giving and getting assistance) (Maddi *et al.*, 2009).

However, along with the cases mentioned above, there were a few additional approaches included in this synthesis for which their effectiveness was rather inconclusive. Examples include the mixed results regarding the effectiveness of a supportive online messaging intervention (Stephens and Gunther, 2016) and another online-based intervention reporting ephemeral (i.e., short-lasting) results (Goertzen and Whitaker, 2015). Some notable design issues were also documented within the reviewed articles, such as the need to conduct future research that addresses the issues of small sample sizes and poor external validity (Lee and Mason, 2019), the use of convenience samples (Houston *et al.*, 2017) and a lack of replication (Slavin *et al.*, 2014). Overall, the efficacy and effectiveness of the reviewed approaches reflected a considerable range outcomes and this review echoes the sentiments of included papers (e.g., Elmi, 2020) that note that more research on the effectiveness of resilience-promoting pedagogical approaches is warranted.

### 4.2 Limitations

Limitations of this review bear mention. Notably, there was significant heterogeneity across the target groups (e.g., medical students, undocumented students) of, and in the particular domains (e.g., anxiety, relational skills, awareness) within, the synthesized programs. Such heterogeneity in these respects, while somewhat anticipated, given the complex nature of the 'resilience' concept, underscore that the effectiveness or suitability of the reviewed interventions aren't necessarily translatable across all HE contexts or groups of students and that the recommendations made in this discussion should be considered in an appropriate manner. The review's scope is also limited to generally only one area of analysis and discussion (i.e., academic settings) regarding environments affecting HE students' resilience. Consequently, the review did not consider other additional environments (e.g., home/living situation) that have the potential to contribute to strengthening or deteriorating resilience. Likewise, the inclusion criteria applied, in order to maintain a robust scope of inquiry, excluded programs that did not explicitly mention resilience as a focus. This means that this review did not analyze programs for HE students that solely addressed stress or anxiety, for instance. Last, given the aims of the

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<sup>4</sup> Example educational resource: <https://sdlab.fas.harvard.edu/cognitive-reappraisal/positive-reframing-and-examining-evidence> (Accessed: September 9 2021).

synthesis, this review makes no suggestions about the priority that resilience should occupy in the pedagogical or course design approaches of instructors or larger institutions.

### 5 Conclusion

Improving pedagogy to support resilience among students in HE can positively affect student retention and assist students in developing critical skills needed to enhance their mental well-being and academic achievement. This review thematically analyzed and synthesized thirty-five articles containing pedagogical approaches implemented in HE settings to support student resilience, principally finding that approaches are diverse with respect to the program operation level (e.g., individual, interpersonal) and program goals most significantly emphasized education and skill development. Future research opportunities include the implementation and evaluation of multi-level programs, as well as the development of more structural and policy-level approaches to student resilience in HE.

### 6 Reference list

Allan, J.F., McKenna, J. and Dominey, S. (2014) 'Degrees of resilience: Profiling psychological resilience and prospective academic achievement in university inductees.' *British Journal of Guidance & Counselling*, 42(1), 9-25. Available at: [https://www.tandfonline.com/doi/pdf/10.1080/03069885.2013.793784?casa\\_token=PBd5DLa1y1sAAAAA:fCyEdmVYbzUAFWEfXxociuq3uRLiTD84nh2vs3BVMs8fOtrsgvHlvi7DnWTM4r7VFrSLqODi1iywA](https://www.tandfonline.com/doi/pdf/10.1080/03069885.2013.793784?casa_token=PBd5DLa1y1sAAAAA:fCyEdmVYbzUAFWEfXxociuq3uRLiTD84nh2vs3BVMs8fOtrsgvHlvi7DnWTM4r7VFrSLqODi1iywA) (Accessed: 3 June 2021).

American College Health Association (2016) *National College Health Assessment II: Canadian Reference Group Data Report Spring 2016*. American College Health Association. Available at: <https://www.acha.org/documents/ncha/NCHA-II%20SPRING%202016%20CANADIAN%20REFERENCE%20GROUP%20DATA%20REPORT.pdf> (Accessed: 3 June 2021).

American College Health Association. (2018) *National College Health Assessment II: Reference Group Executive Summary Fall 2018*. American College Health Association. Available at: [https://www.acha.org/documents/ncha/NCHA-II\\_Fall\\_2018\\_Reference\\_Group\\_Executive\\_Summary.pdf?preview=true](https://www.acha.org/documents/ncha/NCHA-II_Fall_2018_Reference_Group_Executive_Summary.pdf?preview=true) (Accessed: 3 June 2021).

Anthony, J., Stead, R. and Turney, K. (2017) 'Making connections and building resilience: Developing workshops with undergraduates.' *Knowledge Management & E-Learning: An International Journal*, 9(3), 404-418. Available at: <http://www.kmel-journal.org/ojs/index.php/online-publication/article/view/388> (Accessed: 31 May 2021).

Bamber, M.D. and Kraenzle Schneider, J. (2016) 'Mindfulness-based meditation to decrease stress and anxiety in college students: A narrative synthesis of the research.' *Educational Research Review*, 18, 1-32. Available at: <https://doi.org/10.1016/j.edurev.2015.12.004> (Accessed: 2 June 2021).

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M. and Sammut, S. (2015) 'The prevalence and correlates of depression, anxiety, and stress in a sample of college students.' *Journal of Affective Disorders*, 173, 90-96. Available at: [https://www.sciencedirect.com/science/article/pii/S0165032714006867?casa\\_token=8t0itFBVnlkAAAAA:3zBNURYnZf95OSKmwft2Un9VQ5wehU-WzWOPSFb\\_JaZGuG3K70q4si1vyUbNIGH60BUDHqvAOzk](https://www.sciencedirect.com/science/article/pii/S0165032714006867?casa_token=8t0itFBVnlkAAAAA:3zBNURYnZf95OSKmwft2Un9VQ5wehU-WzWOPSFb_JaZGuG3K70q4si1vyUbNIGH60BUDHqvAOzk) (Accessed: 4 June 2021).

Bingham, T.J., Wirjapranata, J. and Bartley, A. (2017) 'Building resilience and resourcefulness: The evolution of an academic and information literacy strategy for first year social work students.' *Information and Learning Science*. Available at: <https://www.emerald.com/insight/content/doi/10.1108/ILS-05-2017-0046/full/html> (Accessed: 31 May 2021).

Bird, A., Tomescu, O., Oyola, S., Houpy, J., Anderson, I. and Pincavage, A. (2020) 'A Curriculum to Teach Resilience Skills to Medical Students During Clinical Training.' *MedEdPORTAL*, 16, 10975. Available at: [https://www.mededportal.org/doi/full/10.15766/mep\\_2374-8265.10975](https://www.mededportal.org/doi/full/10.15766/mep_2374-8265.10975) (Accessed: 31 May 2021).

Bland, H.W., Melton, B.F., Welle, P. and Bigham, L. (2012) 'Stress tolerance: New challenges for millennial college students.' *College Student Journal*, 46(2), 362-376. Available at: <https://go.gale.com/ps/i.do?id=GALE%7CA297135954&sid=googleScholar&v=2.1&it=r&linkacces=abs&issn=01463934&p=AONE&sw=w&userGroupName=anon%7Ed577c924> (Accessed: 1 June 2021).

Brewer, M.L., Kessel, G. van, Sanderson, B., Naumann, F., Lane, M., Reubenson, A. and Carter, A. (2019) 'Resilience in higher education students: A scoping review.' *Higher Education Research & Development*, 38(6), 1105–1120. Available at: <https://doi.org/10.1080/07294360.2019.1626810> (Accessed: 17 May 2021).

Bynum IV, W.E., Uijtdehaage, S., Artino Jr, A.R. and Fox, J. W. (2020) 'The Psychology of Shame: A Resilience Seminar for Medical Students.' *MedEdPORTAL*, 16, 11052. Available at: [https://www.mededportal.org/doi/full/10.15766/mep\\_2374-8265.11052](https://www.mededportal.org/doi/full/10.15766/mep_2374-8265.11052) (Accessed: 31 May 2021).

Center for Collegiate Mental Health. (2017) *2016 Annual Report* (Publication No. STA 17-74). Available at: [https://sites.psu.edu/ccmh/files/2017/01/2016-Annual-Report-FINAL\\_2016\\_01\\_09-1gc2hj6.pdf](https://sites.psu.edu/ccmh/files/2017/01/2016-Annual-Report-FINAL_2016_01_09-1gc2hj6.pdf) (Accessed: 5 June 2021).

Chaukos, D., Chad-Friedman, E., Mehta, D.H., Byerly, L., Celik, A., McCoy, T.H. and Denninger, J.W. (2018) 'SMART-R: A prospective cohort study of a resilience curriculum for residents by residents.' *Academic Psychiatry*, 42(1), 78-83. Available at: <https://link.springer.com/article/10.1007/s40596-017-0808-z> (Accessed: 31 May 2021).

Conley, C.S., Durlak, J.A. and Dickson, D.A. (2013) 'An Evaluative Review of Outcome Research on Universal Mental Health Promotion and Prevention Programs for Higher Education Students.' *Journal of American College Health*, 61(5), 286-301. Available at: <https://doi.org/10.1080/07448481.2013.802237> (Accessed: 13 June 2021).

Daniels, K.N., Billingsley, K.Y., Billingsley, J., Long, Y. and Young, D. (2015) 'Impacting resilience and persistence in underrepresented populations through service-learning.' *Journal for Multicultural Education*. Available at: <https://www.emerald.com/insight/content/doi/10.1108/JME-02-2015-0005/full/html> (Accessed: 30 May 2021).

Dattilio, F.M. (2000) 'Cognitive-behavioral strategies.' *Brief Therapy with Individuals and Couples*, 33-70. Available at: <https://psycnet.apa.org/record/2000-05516-002> (Accessed: 12 June 2021).



Delany, C., Miller, K.J., El-Ansary, D., Remedios, L., Hosseini, A. and McLeod, S. (2015) 'Replacing stressful challenges with positive coping strategies: A resilience program for clinical placement learning.' *Advances in Health Sciences Education*, 20(5), 1303-1324. Available at: <https://link.springer.com/article/10.1007/s10459-015-9603-3> (Accessed: 30 May 2021).

Dolbier, C.L., Jaggars, S.S. and Steinhardt, M.A. (2010) 'Stress-related growth: Pre-intervention correlates and change following a resilience intervention.' *Stress and Health: Journal of the International Society for the Investigation of Stress*, 26(2), 135-147. Available at: [https://onlinelibrary.wiley.com/doi/abs/10.1002/smi.1275?casa\\_token=RxiNf1m9M5IAAAA:FC-kVcGlwwRvj6Zj5-pNoOdQuUVvMb9NCYBrybOtuCik0r2xnYFoKDz7vm\\_W5TCctZAHCoY3euRHjBE](https://onlinelibrary.wiley.com/doi/abs/10.1002/smi.1275?casa_token=RxiNf1m9M5IAAAA:FC-kVcGlwwRvj6Zj5-pNoOdQuUVvMb9NCYBrybOtuCik0r2xnYFoKDz7vm_W5TCctZAHCoY3euRHjBE) (Accessed: 30 May 2021).

Donovan, C. and Erskine-Shaw, M. (2020) '“Maybe I can do this. Maybe I should be here”: Evaluating an academic literacy, resilience and confidence programme.' *Journal of Further and Higher Education*, 44(3), 326-340. Available at: [https://www.tandfonline.com/doi/full/10.1080/0309877X.2018.1541972?casa\\_token=vRjIw1xgwIoAAAA%3AQqWCTQR8Q32ECetu6H-gMDzjXmO\\_88daVIViea4ZQHcNPARXV4JLNd2HnofPqJu21MbOXp6D6k1MeQ](https://www.tandfonline.com/doi/full/10.1080/0309877X.2018.1541972?casa_token=vRjIw1xgwIoAAAA%3AQqWCTQR8Q32ECetu6H-gMDzjXmO_88daVIViea4ZQHcNPARXV4JLNd2HnofPqJu21MbOXp6D6k1MeQ) (Accessed: 30 May 2021).

Dresen, C.K., Wilmes, M.L., Sullivan, K.R. and Waterbury, T. A. (2019) 'Building resilience through strengths-based learning during graduate study abroad: An exploratory study.' *Journal of Experiential Education*, 42(3), 297-310. Available at: [https://journals.sagepub.com/doi/full/10.1177/1053825919861414?casa\\_token=31E02SI7RwgAAAA%3Ar5E8EuCnfrJokPmoFun0aKdqy-Ys8LH2i-TgmMaHHJsNSWwPostVgneRWCEvtNZ6XLJ5EUimqPoF6w](https://journals.sagepub.com/doi/full/10.1177/1053825919861414?casa_token=31E02SI7RwgAAAA%3Ar5E8EuCnfrJokPmoFun0aKdqy-Ys8LH2i-TgmMaHHJsNSWwPostVgneRWCEvtNZ6XLJ5EUimqPoF6w) (Accessed: 31 May 2021).

Dvořáková, K., Kishida, M., Li, J., Elavsky, S., Broderick, P.C., Agrusti, M.R. and Greenberg, M. T. (2017) 'Promoting healthy transition to college through mindfulness training with first-year college students: Pilot randomized controlled trial.' *Journal of American College Health*, 65(4), 259-267. Available at: <https://doi.org/10.1080/07448481.2017.1278605> (Accessed: 14 June 2021).

Elmi, C. (2020) 'Integrating Social Emotional Learning Strategies in Higher Education.' *European Journal of Investigation in Health, Psychology and Education*, 10(3), 848-858. Available at: <https://www.mdpi.com/2254-9625/10/3/61> (Accessed: 30 May 2021).

Ewert, A. and Yoshino, A. (2011) 'The influence of short-term adventure-based experiences on levels of resilience.' *Journal of Adventure Education and Outdoor Learning*, 11(1), 35-50. Available at: [https://www.tandfonline.com/doi/full/10.1080/14729679.2010.532986?casa\\_token=2fZ42ym9upEAAAAA%3ARla\\_thFCMam4-Ad4HlsGo8\\_PPZux0Z7xyOiXlv2V4PlulyvMiAJ8hA-d3XmeRjo-QC5v2sgf7qqQ6g](https://www.tandfonline.com/doi/full/10.1080/14729679.2010.532986?casa_token=2fZ42ym9upEAAAAA%3ARla_thFCMam4-Ad4HlsGo8_PPZux0Z7xyOiXlv2V4PlulyvMiAJ8hA-d3XmeRjo-QC5v2sgf7qqQ6g) (Accessed: 30 May 2021).

Friborg, O., Hjemdal, O., Martinussen, M. and Rosenvinge, J.H. (2009) 'Empirical support for resilience as more than the counterpart and absence of vulnerability and symptoms of mental disorder.' *Journal of Individual Differences*, 30(3), 138-151. Available at: <https://econtent.hogrefe.com/doi/abs/10.1027/1614-0001.30.3.138> (Accessed: 3 June 2021).

Fried, R.R., Atkins, M.-A.P. and Irwin, J.D. (2019) 'Breaking grad: Building resilience among a sample of graduate students struggling with stress and anxiety via a peer coaching model—an 8-Month pilot study.' *International Journal*, 17, 2. Available at: [https://www.monarchsystem.com/wp-content/uploads/2019/08/Breaking-Grad\\_Building-Resilience-Among-a-Sample-of-Graduate-Students-Struggling-with-Stress-and-Anxiety-via-a-Peer-Coaching-Model-%E2%80%93-An-8-Month-Pilot-Study.pdf](https://www.monarchsystem.com/wp-content/uploads/2019/08/Breaking-Grad_Building-Resilience-Among-a-Sample-of-Graduate-Students-Struggling-with-Stress-and-Anxiety-via-a-Peer-Coaching-Model-%E2%80%93-An-8-Month-Pilot-Study.pdf) (Accessed: 30 May 2021).

Fried, R.R., Karmali, S., Irwin, J.D., Gable, F.L. and Salmoni, A. (2018) 'Making the grade: Mentors' perspectives of a course-based, smart, healthy campus pilot project for building mental health resiliency through mentorship and physical activity.' *International Journal of Evidence Based Coaching and Mentoring*, 16(2), 84-98. Available at: <https://search.informit.org/doi/abs/10.3316/INFORMIT.853121979597746> (Accessed: 30 May 2021).

Galante, J., Dufour, G., Vainre, M., Wagner, A.P., Stochl, J., Benton, A., Lathia, N., Howarth, E. and Jones, P.B. (2018) 'A mindfulness-based intervention to increase resilience to stress in university students (the Mindful Student Study): A pragmatic randomised controlled trial.' *The Lancet Public Health*, 3(2), e72-e81. Available at: <https://www.sciencedirect.com/science/article/pii/S2468266717302311> (Accessed: 31 May 2021).

Gerson, M.W. and Fernandez, N. (2013) 'PATH: A program to build resilience and thriving in undergraduates.' *Journal of Applied Social Psychology*, 43(11), 2169-2184. Available at: [https://onlinelibrary.wiley.com/doi/abs/10.1111/jasp.12168?casa\\_token=ArBQCwKxMB0AAAAA:5G2zCd7peAF6NtITQypQJHNyWRfZi1ic2bljBcEjTsDApUXNyUCSH4ZWY8Aa2ev1dC-ThxQ262Xzxi4](https://onlinelibrary.wiley.com/doi/abs/10.1111/jasp.12168?casa_token=ArBQCwKxMB0AAAAA:5G2zCd7peAF6NtITQypQJHNyWRfZi1ic2bljBcEjTsDApUXNyUCSH4ZWY8Aa2ev1dC-ThxQ262Xzxi4) (Accessed: 31 May 2021).

Ghisi, M., Bottesi, G., Re, A.M., Cerea, S. and Mammarella, I.C. (2016) 'Socioemotional Features and Resilience in Italian University Students with and without Dyslexia.' *Frontiers in Psychology*, 7. Available at: <https://doi.org/10.3389/fpsyg.2016.00478> (Accessed: 3 June 2021).

Gilmore, G., Welsh, S. and Loton, D. (2019) 'An Australian case for relational resilience. Building academic pathways in first year, preservice teacher education.' *Pedagogy, Culture & Society*, 27(3), 441-461. Available at: [https://www.tandfonline.com/doi/full/10.1080/14681366.2018.1522365?casa\\_token=KyzonpKyuBkAAAAA%3AYfwkcl66xv2dQRAySX-LHwg2VCZh0vsHmLMY1sog92Ca6lao08vjZoi5fCVsGKpa-iGS1rLjC35Vew](https://www.tandfonline.com/doi/full/10.1080/14681366.2018.1522365?casa_token=KyzonpKyuBkAAAAA%3AYfwkcl66xv2dQRAySX-LHwg2VCZh0vsHmLMY1sog92Ca6lao08vjZoi5fCVsGKpa-iGS1rLjC35Vew) (Accessed: 30 May 2021).

Goertzen, B.J. and Whitaker, B.L. (2015) 'Development of psychological capital in an academic-based leadership education program.' *Journal of Management Development*. Available at: [https://www.emerald.com/insight/content/doi/10.1108/JMD-07-2013-0100/full/html?casa\\_token=LY9NrwiLC-8AAAAA:vUblmdfc1weD7F9Yza4QeYN4VjGq6EEJ9E9frVzZ6w1pSgO\\_n6XCa7uxk47-doJ2FIWHLnb1cobK6wQKnE85MU6KLX5paj1NAYE2FQFhLk3Byd2gMrsA](https://www.emerald.com/insight/content/doi/10.1108/JMD-07-2013-0100/full/html?casa_token=LY9NrwiLC-8AAAAA:vUblmdfc1weD7F9Yza4QeYN4VjGq6EEJ9E9frVzZ6w1pSgO_n6XCa7uxk47-doJ2FIWHLnb1cobK6wQKnE85MU6KLX5paj1NAYE2FQFhLk3Byd2gMrsA) (Accessed: 30 May 2021).

Grant, L. and Kinman, G. (2012) 'Enhancing Wellbeing in Social Work Students: Building Resilience in the Next Generation.' *Social Work Education*, 31(5), 605-621. Available at: <https://doi.org/10.1080/02615479.2011.590931> (Accessed: 5 June 2021).

Hensley, L., Sayers, R., Brady, A. and Cutshall, J. (2021) 'Supporting Autonomy, Competence, and Relatedness in a Learning-to-Learn Course: College Students' Insights Into Effective Instruction.' *Teaching of Psychology*, 48(3), 236-247. Available at: <https://doi.org/10.1177/0098628320977270> (Accessed: 14 June 2021).

Holdsworth, S., Turner, M. and Scott-Young, C.M. (2018) '... Not drowning, waving. Resilience and university: A student perspective.' *Studies in Higher Education*, 43(11), 1837-1853. Available at: <https://doi.org/10.1080/03075079.2017.1284193> (Accessed: 14 June 2021).

Houston, J.B., First, J., Spialek, M.L., Sorenson, M.E., Mills-Sandoval, T., Lockett, M., First, N.L., Nitiéma, P., Allen, S.F. and Pfefferbaum, B. (2017) 'Randomized controlled trial of the Resilience and Coping Intervention (RCI) with undergraduate university students.' *Journal of American College Health*, 65(1), 1-9. Available at: <https://doi.org/10.1080/07448481.2016.1227826> (Accessed: 1 June 2021).

Kwon, P., Pattinson, M.C., Faust, E., Hobaica, S., Tse, J., Sainz, R., Castañeda, C., Graham, B.S. and Keiser, G.H. (2020) 'A Resilience Intervention to Increase Academic Persistence Among Undocumented Students in Higher Education.' *Journal of Hispanic Higher Education*, 19(4), 452-471. Available at: [https://journals.sagepub.com/doi/full/10.1177/1538192718823185?casa\\_token=igbm5dwWtQoA AAAA%3A3aWjC4O1cnTUVUY4kbWqr0jT72DeIU0UzQ2ZOQOHTFPCVZq IKZseeD26dUGoa 00vf201ZCsPTdGHQ](https://journals.sagepub.com/doi/full/10.1177/1538192718823185?casa_token=igbm5dwWtQoA AAAA%3A3aWjC4O1cnTUVUY4kbWqr0jT72DeIU0UzQ2ZOQOHTFPCVZq IKZseeD26dUGoa 00vf201ZCsPTdGHQ) (Accessed: 31 May 2021).

Lake, F.R. and Ryan, G. (2005) 'Teaching on the run tips 11: The junior doctor in difficulty.' *Medical Journal of Australia*, 183(9), 475. Available at: [https://www.mja.com.au/system/files/issues/183\\_09\\_071105/lak10465\\_fm.pdf](https://www.mja.com.au/system/files/issues/183_09_071105/lak10465_fm.pdf) (Accessed: 5 June 2021).

Leary, K.A. and DeRosier, M.E. (2012) 'Factors Promoting Positive Adaptation and Resilience during the Transition to College.' *Psychology*, 03(12), 1215. Available at: <https://doi.org/10.4236/psych.2012.312A180> (Accessed: 3 June 2021).

Lee, S. and Mason, M. (2019) 'Effectiveness of brief DBT-informed group therapy on psychological resilience: A preliminary naturalistic study.' *Journal of College Student Psychotherapy*, 33(1), 25-37. Available at: [https://www.tandfonline.com/doi/full/10.1080/87568225.2018.1425646?casa\\_token=2DEm4W3 N8CcAAAAA%3A7jAiKd1ggqiVjZtzcdQ9r3wBz APAQrBZ2GZ9UbJDzt6gg49JwKMEaKKfisMN zZlcaUN 9TYb1rG8w](https://www.tandfonline.com/doi/full/10.1080/87568225.2018.1425646?casa_token=2DEm4W3 N8CcAAAAA%3A7jAiKd1ggqiVjZtzcdQ9r3wBz APAQrBZ2GZ9UbJDzt6gg49JwKMEaKKfisMN zZlcaUN 9TYb1rG8w) (Accessed: 30 May 2021).

London, B., Rosenthal, L., Levy, S.R. and Lobel, M. (2011) 'The influences of perceived identity compatibility and social support on women in nontraditional fields during the college transition.' *Basic and Applied Social Psychology*, 33(4), 304-321. Available at: [https://www.tandfonline.com/doi/full/10.1080/01973533.2011.614166?casa\\_token=UMIA0q\\_k2J0AAAAA%3Anxfqsl8sw-M62sEjGcQQ\\_HeZAQV7RG0hbryT3SolHQjFD8VRpL6xiqpwFEMldZzollAdyoHvS13axA](https://www.tandfonline.com/doi/full/10.1080/01973533.2011.614166?casa_token=UMIA0q_k2J0AAAAA%3Anxfqsl8sw-M62sEjGcQQ_HeZAQV7RG0hbryT3SolHQjFD8VRpL6xiqpwFEMldZzollAdyoHvS13axA) (Accessed: 4 June 2021).

Macklem, G.L. (2010) *Evidence-Based School Mental Health Services: Affect Education, Emotion Regulation Training, and Cognitive Behavioral Therapy*. New York: Springer Science & Business Media. ISBN: 978-1-4419-7907-0

Maddi, S.R., Harvey, R.H., Khoshaba, D.M., Fazel, M. and Resurreccion, N. (2009) 'Hardiness training facilitates performance in college.' *The Journal of Positive Psychology*, 4(6), 566-577. Available at: [https://www.tandfonline.com/doi/full/10.1080/17439760903157133?casa\\_token=1u-1c4fpzbMAAAAA%3AA\\_fZ4iSp1CisVRsUMimdLLkMP7UA1T2weM6ZnPsRvFNxTSjLcTHh-LNtr7dmKz9ekGJ\\_AjWT9R7abA](https://www.tandfonline.com/doi/full/10.1080/17439760903157133?casa_token=1u-1c4fpzbMAAAAA%3AA_fZ4iSp1CisVRsUMimdLLkMP7UA1T2weM6ZnPsRvFNxTSjLcTHh-LNtr7dmKz9ekGJ_AjWT9R7abA) (Accessed: 30 May 2021).

McAllister, M. and McKinnon, J. (2009) 'The importance of teaching and learning resilience in the health disciplines: A critical review of the literature.' *Nurse Education Today*, 29(4), 371-379. Available at: <https://doi.org/10.1016/j.nedt.2008.10.011> (Accessed: 4 June 2021).

Monteverde, S. (2014) 'Undergraduate healthcare ethics education, moral resilience, and the role of ethical theories.' *Nursing Ethics*, 21(4), 385-401. Available at: [https://journals.sagepub.com/doi/full/10.1177/0969733013505308?casa\\_token=W7Rv6w\\_XC8oAAAAA%3A2DRm9kGjGcMkY97SQRYp6jqW-Q3ICINr-8HiBSLwoni5h1InejK7EEsYyDWEJQJGj\\_xsTXq-p6Ovcq](https://journals.sagepub.com/doi/full/10.1177/0969733013505308?casa_token=W7Rv6w_XC8oAAAAA%3A2DRm9kGjGcMkY97SQRYp6jqW-Q3ICINr-8HiBSLwoni5h1InejK7EEsYyDWEJQJGj_xsTXq-p6Ovcq) (Accessed: 31 May 2021).

Neill, J.T. and Dias, K.L. (2001) 'Adventure education and resilience: The double-edged sword.' *Journal of Adventure Education & Outdoor Learning*, 1(2), 35-42. Available at: [https://www.tandfonline.com/doi/pdf/10.1080/14729670185200061?casa\\_token=YfaEVnQU8EcAAAAA%3AcbQ5p3GRIFeZFEz3RRV5TKFJnxAZtNQjiaHT29aQWmiUXKMkuKJOVnFpk\\_nlr7SoR6Fgj\\_NW1bfA](https://www.tandfonline.com/doi/pdf/10.1080/14729670185200061?casa_token=YfaEVnQU8EcAAAAA%3AcbQ5p3GRIFeZFEz3RRV5TKFJnxAZtNQjiaHT29aQWmiUXKMkuKJOVnFpk_nlr7SoR6Fgj_NW1bfA) (Accessed: 31 May 2021).

Petticrew, M. and Roberts, H. (2006) *Systematic reviews in the social sciences: A practical guide*. Malden: Blackwell. ISBN: 1405150149

Pines, E.W., Rauschhuber, M.L., Cook, J.D., Norgan, G.H., Canchola, L., Richardson, C. and Jones, M.E. (2014) 'Enhancing resilience, empowerment, and conflict management among baccalaureate students: Outcomes of a pilot study.' *Nurse Educator*, 39(2), 85-90. Available at: [https://journals.lww.com/nurseeducatoronline/fulltext/2014/03000/Enhancing\\_Resilience\\_Empowerment\\_and\\_Conflict.8.aspx?casa\\_token=MS2Af7hZPP8AAAAA:ujgBjcDvVMJ8-Abvy-DsQsCJs\\_1kXpZ-RqiOTvP9cwKsxbzMT6TE03zYZgyfUslZzFa9wT\\_eFyYM9i6tTbWb54rdIRBaw](https://journals.lww.com/nurseeducatoronline/fulltext/2014/03000/Enhancing_Resilience_Empowerment_and_Conflict.8.aspx?casa_token=MS2Af7hZPP8AAAAA:ujgBjcDvVMJ8-Abvy-DsQsCJs_1kXpZ-RqiOTvP9cwKsxbzMT6TE03zYZgyfUslZzFa9wT_eFyYM9i6tTbWb54rdIRBaw) (Accessed: 30 May 2021).

Regehr, C., Glancy, D. and Pitts, A. (2013) 'Interventions to reduce stress in university students: A review and meta-analysis.' *Journal of Affective Disorders*, 148(1), 1-11. Available at: <https://doi.org/10.1016/j.jad.2012.11.026> (Accessed: 3 June 2021).

Reyes, A.T., Andrusyszyn, M.-A., Iwasiw, C., Forchuk, C. and Babenko-Mould, Y. (2015) 'Resilience in nursing education: An integrative review.' *Journal of Nursing Education*, 54(8), 438-444. Available at: <https://journals.healio.com/doi/abs/10.3928/01484834-20150717-03> (Accessed: 3 June 2021).

Robinson, O.C., Sebah, I., McNay, I., Field, J., Wragg, J., Stevenson, M. and Newton, P. (2021) 'Evaluating the REP-S brief resilience intervention for students in higher education: A multi-study mixed-methods programme of research.' *British Journal of Guidance & Counselling*, 1-17. Available at: <https://www.tandfonline.com/doi/pdf/10.1080/03069885.2021.1888372> (Accessed: 30 May 2021).

Rose, R.D., Buckey Jr, J.C., Zbozinek, T.D., Motivala, S.J., Glenn, D.E., Cartreine, J.A. and Craske, M.G. (2013) 'A randomized controlled trial of a self-guided, multimedia, stress management and resilience training program.' *Behaviour Research and Therapy*, 51(2), 106-112. Available at: [https://www.sciencedirect.com/science/article/pii/S0005796712001738?casa\\_token=H10gkC\\_zxkIAAAAA:KA4xCq0-Dmr2Ee4IKvYkm3SuKjPWtKM4aRFmZcKohQHwxccyR3n4h1bXLsrLKHVHzAwEWIebIJ4](https://www.sciencedirect.com/science/article/pii/S0005796712001738?casa_token=H10gkC_zxkIAAAAA:KA4xCq0-Dmr2Ee4IKvYkm3SuKjPWtKM4aRFmZcKohQHwxccyR3n4h1bXLsrLKHVHzAwEWIebIJ4) (Accessed: 1 June 2021).

Sanderson, B. and Brewer, M. (2017) 'What do we know about student resilience in health professional education? A scoping review of the literature.' *Nurse Education Today*, 58, 65-71. Available at: <https://doi.org/10.1016/j.nedt.2017.07.018> (Accessed: 3 June 2021).

Shillington, K.J., Johnson, A.M., Mantler, T., Burke, S.M. and Irwin, J.D. (2021) 'Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II.' *Journal of Happiness Studies*, 1-31. Available at: <https://link.springer.com/article/10.1007/s10902-021-00379-0> (Accessed: 30 May 2021).

Slavin, S.J., Schindler, D.L. and Chibnall, J.T. (2014) 'Medical student mental health 3.0: Improving student wellness through curricular changes.' *Academic Medicine*, 89(4), 573. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885556/> (Accessed: 30 May 2021).

Stallman, H.M. (2010) 'Psychological distress in university students: A comparison with general population data.' *Australian Psychologist*, 45(4), 249-257. Available at: <https://doi.org/10.1080/00050067.2010.482109> (Accessed: 2 June 2021).

Steinhardt, M. and Dolbier, C. (2008) 'Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology.' *Journal of American College Health*, 56(4), 445-453. Available at: [https://www.tandfonline.com/doi/abs/10.3200/JACH.56.44.445-454?casa\\_token=iRPvhJzoCmAAAAA:B4POYRLy0fp1\\_XWlokSr\\_uuLyhrnv6Rj1hoBoP\\_kJNPZoYe4CSJlwww7BqD\\_b1\\_Aa1g\\_HxLYYTLunQ](https://www.tandfonline.com/doi/abs/10.3200/JACH.56.44.445-454?casa_token=iRPvhJzoCmAAAAA:B4POYRLy0fp1_XWlokSr_uuLyhrnv6Rj1hoBoP_kJNPZoYe4CSJlwww7BqD_b1_Aa1g_HxLYYTLunQ) (Accessed: 30 May 2021).

Stephens, T.M. and Gunther, M.E. (2016) 'Twitter, millennials, and nursing education research.' *Nursing Education Perspectives*, 37(1), 23-27. Available at: [https://journals.lww.com/neponline/Fulltext/2016/01000/Twitter,\\_Millennials,\\_and\\_Nursing\\_Education.6.aspx](https://journals.lww.com/neponline/Fulltext/2016/01000/Twitter,_Millennials,_and_Nursing_Education.6.aspx) (Accessed: 31 May 2021).

The Insight Network. (2019) *University Student Mental Health Survey 2018*. The Insight Network. Available at: [https://uploads-ssl.webflow.com/561110743bc7e45e78292140/5c7d4b5d314d163fecdc3706\\_Mental%20Health%20Report%202018.pdf](https://uploads-ssl.webflow.com/561110743bc7e45e78292140/5c7d4b5d314d163fecdc3706_Mental%20Health%20Report%202018.pdf) (Accessed: 3 June 2021).

Thomas, J. and Harden, A. (2008) 'Methods for the thematic synthesis of qualitative research in systematic reviews.' *BMC Medical Research Methodology*, 8(1), 45. Available at: <https://doi.org/10.1186/1471-2288-8-45> (Accessed: 2 June 2021).

Van der Riet, P., Rossiter, R., Kirby, D., Dluzewska, T. and Harmon, C. (2015) 'Piloting a stress management and mindfulness program for undergraduate nursing students: Student feedback and lessons learned.' *Nurse Education Today*, 35(1), 44-49. Available at: [https://www.sciencedirect.com/science/article/pii/S0260691714001877?casa\\_token=NiVwa6ENkwwAAAAA:CcaVZUmFjNwL-dERtJB3fvY2B2eDCnnCeI8Om14R7IGILoeUO6DnPJtQw7P65nva\\_0DusG5URU](https://www.sciencedirect.com/science/article/pii/S0260691714001877?casa_token=NiVwa6ENkwwAAAAA:CcaVZUmFjNwL-dERtJB3fvY2B2eDCnnCeI8Om14R7IGILoeUO6DnPJtQw7P65nva_0DusG5URU) (Accessed: 30 May 2021).

Wade, J.C., Marks, L.I., and Hetzel, R.D. (2015) *Positive Psychology on the College Campus*. Oxford: Oxford University Press. ISBN: 978-0-19-989273-0

Wang, D., Nan, J.K. and Zhang, R. (2017) 'Structured group sandplay to improve the resilience of college students: A pilot study.' *The Arts in Psychotherapy*, 55, 186-194. Available at: [https://www.sciencedirect.com/science/article/pii/S0197455616301101?casa\\_token=fi29ScG8arqAAAAA:f6Fw3XWddKqnUdwmYb0vHKPRpivwG-RfbkmKdWe-eZmZ6xk5HZ-IW7dZt1xVu62yF7x8TQAs0ml](https://www.sciencedirect.com/science/article/pii/S0197455616301101?casa_token=fi29ScG8arqAAAAA:f6Fw3XWddKqnUdwmYb0vHKPRpivwG-RfbkmKdWe-eZmZ6xk5HZ-IW7dZt1xVu62yF7x8TQAs0ml) (Accessed: 30 May 2021).

Windle, G. (2011) 'What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, 21(2), 152. Available at: <https://www.cambridge.org/core/journals/reviews-in-clinical-gerontology/article/abs/what-is-resilience-a-review-and-concept-analysis/B94C9BEAD7F43E1297EC9443DD24CA5C> (Accessed: 30 May 2021).

Yusufov, M., Nicoloro-SantaBarbara, J., Grey, N.E., Moyer, A. and Lobel, M. (2019) 'Meta-analytic evaluation of stress reduction interventions for undergraduate and graduate students'. *International Journal of Stress Management*, 26(2), 132. Available at: <https://psycnet.apa.org/record/2018-19486-001> (Accessed: 28 May 2021).