# **Supplemental Materials**

**i) Resilience Teaching Strategies and Course Designs for Students in Higher Education** (n=35)

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| **Reference Info** | **Demographic Info** | **Discipline** | **Strategy/Design**  | **Relevant Findings Summary** |
| Anthoney et al. (2017) | Guildford, SE, England.Undergraduate students (unknown number) | Multidisciplinary | Three strategies intended to get students to think about their personal understandings of resilience and create their own models based on such perceptions. 1) **LEGO serious play (LSP)** to support metaphorical understandings of resilience, get students to contemplate ideas from different angles etc. Having built their models, the students then shared and discussed them with a peer in order to extrapolate some of the key themes, which were then recorded on post it notes and placed around the models.2) **Concept mapping** about how students understand resilience and make connections between ideas, barriers, strategies. Concept maps should be viewed instead as tools which can facilitate exploration of the relationships presented therein, and ultimately prompt dialogue … the recognition of the nature of the relationships between ideas that can facilitate the development of strategies to address concerns.3) **Discussions about fixed vs. growth mindset**: Discussions focused on the fixed mindset vs. the growth mindset which is a contrast in the beliefs about whether intelligence is either a basic factor which cannot be changed or that it can be substantially changed and developed. This duality of mindsets closely aligns with the idea of a Locus of Control which refers to the degree to which a person believes they have control over the outcome of events in their lives. An individual with an external locus of control believes that external forces are responsible for the outcome whilst those with internal loci believe that they have control over their own lives. Rationale for introducing this idea and gauging the students’ stance on mindsets was to open up discussion on the possibilities of adopting a more resilient approach to their personal, academic and professional activities. Those with a **growth mindset are more likely to view failure as an important aspect of their learning journey** and one which helps them to achieve success in the longer term. Those with a fixed mindset tend to see failure as a verdict on themselves, personally, rather than as a verdict on a one-off situation or event.🡪Program conducted in workshop setting. | **LSP**: observed themes included students identifying resilience including 1) strength and stability, 2) awareness of the external influences and obstacles, 3) perseverance and flexibility, and 4) end goals as how they perceive resilience.**Concept maps**: when discussing resilience, students reflected that they 1) had a new found appreciation of the complexity of resilience, 2) recognize the importance of adopting a growth mindset, and 3) see the fundamental importance of reflection as a tool for aiding the growth mindset.**Discussions**: This produced some interesting but unsurprising results; all but one of the students described themselves as perfectionists who would only be happy graduating with a first. This is supported by Dickinson and Dickinson (2014, p. 1) who found that “one of the most frequent self-reported challenges within this high-achieving group is perfectionism”. Other interesting results revealed the majority of students believed that their determination was more important than their talent in helping them succeed.  |
| Bingham et al. (2017) | Auckland, AUK, NZ.Undergraduate students were target population (curriculum development, not a single program) | Social Work | Five step academic and information literacy (AIL) curriculum development for a first-year social work course designed to implement and imbed AIL teaching strategies in the course.Three steps ostensibly related to student resilience: inclusion of **multi-literacies** (i.e., integrating information and academic literacy activities into the curriculum), **threshold concepts** (i.e., core ideas or processes that define ways of knowing and/or practicing), and an **emphasis on capabilities/concepts not tools and resources** (a move away from a focus on ‘show and tell’ of specific tools and resources to problem based learning which allowed for critical thinking and reflection, as well as resilience when things did not go as planned). 🡪10-year evaluation of curriculum development. | **Multi-literacies**: helped to facilitate students in developing resilience and encourage higher order critical thinking skills through having them deal with situations when they are not going as expected (e.g., searching for information).**Threshold concepts**: once mastered, threshold concepts can help students in developing an improved understanding of information environments as they can teach resilience and resourcefulness in the event of an unexpected outcome or adverse situation.**Emphasis on capabilities/concepts not tools and resources**: Librarians provided opportunities for students to explore relevant academic resources and provided suggestions for evaluating these, but essential decision making about what to use and why was left up to students. This was a move away from a traditional “sage on the stage” approach and effectively contributed to building students’ research resilience and confidence in their research and critical thinking skills.Additionally, the study noted that opportunities for students to explore and evaluate relevant academic resources while **having to make the decisions about what to use and why** can also help to build students’ research resilience and confidence. |
| Bird et al. (2020) | \*Pennsylvania, US.144 medical students at two universities | Medicine | Four sessions in a workshop were designed to introduce students who had experienced medical clerkships to the concept of resilience, and then teach them skills to cultivate resilience and promote wellness.1) Session 1: **defining the concept of resilience** and introducing the practice of setting realistic expectations.2) Session 2: focus on discussing and **how to address challenging team dynamics**.3) Session 3: review techniques and exercises relevant to the **identification of, processing of, and moving** from events marked by disappointments and setbacks (e.g., loving-kindness meditation, Tonglen attitude/breathing, reflective writing, compassionate listening, and journaling).4) Session 4: **skill-building exercises** focused on finding meaning in daily work (e.g., energy balance, gratitude letters).🡪Resilience curriculum delivered via workshops. | Quantitative evaluations observed at one university students experienced a significant increase in resilience, while at the other there was no significant increase in resilience.Qualitative evaluations found that students appreciated 1) **connecting with peers and feeling less alone**, 2) **that attention was paid to wellness during clerkships**.Additionally, in the discussion, the authors highlight that while they found students enjoyed reading their peers’ online reflections and thoughts in the workshops, they would have **preferred anonymity as medical student have been found to prefer a sense of a safe learning environment**. |
| Bynum IV et al. (2020) | Durham, NC, US.113 second-year medical students | Medicine | Two-hour seminars were designed to help medical students constructively engage with shame (develop shame resilience).The workshops began with a facilitator presenting two **personal shame stories** as a medical learner. These stories and other have since been turned into a **10-minute film** featuring first-person experiences of shame. This was followed by a **presentation** on the psychology of shame by a medical professional, and concluded with **student panel and group discussions** (discussions focused on reactions to the materials presented in the workshop and potential strategies to use in the future).🡪Module delivered in a workshop setting. | Pre- and post-survey evaluations of the workshop found statistically significant increases in: 1) **the level of importance students ascribed to identifying a shame reaction in themselves**, 2) **in sharing their feelings of shame with other people**, 3) **students’ confidence in their ability to recognize shame in themselves and others**, 4) **distinguish shame from guilt** 5) **recover from a shame reaction**, and 6) **students’ willingness to reach out to others when shame occurs**.Qualitative thematic analyses found that seminars will likely impact future resilience through: 1) **the power of identifying and normalizing shame**, and 2) **the importance of reaching out to others**. Other lesser themes included the value of peer support, willingness to rely on peers when feeling shame, and commitment to supporting peers struggling with shame. |
| Chaukos et al. (2018) | US.73 medicine and 17 psychiatry residents | Medicine, Psychiatry | The intervention was titled “Stress Management and Resiliency Training Program for Residents” (SMART-R), and is designed as a curriculum that teaches meditation, behavioral skills, and positive perspective-taking strategies.SMART-R is a 6-h group-based intervention that was embedded within the required didactic curricula for interns in the departments of medicine and psychiatry at a US teaching hospital. The intervention sought to incorporate resident and faculty expertise to create a relevant resiliency curriculum through the points of: 1) **elicitation of the relaxation response**, 2) **stress awareness and coping strategies**, and 3) **positive perspective taking and meaning finding**. Consequently, SMART-R teaches **mind-body techniques**, **stress awareness skills** (behavioral strategies for common thought distortions), **meaningful goal-setting techniques**, and **positive perspective-taking approaches**.🡪The 6-h curriculum was divided into three sessions and delivered over the first 6 months of the year. | During the six-month intervention period, **depression** **symptoms** and **fatigue** increased significantly, while **optimism** decreased (non-significant). There was no significant change in **perceived stress**, **worry**, **sense of personal accomplishment**, **coping skills**, **self-efficacy**, **mindfulness**, or **empathic perspective-taking**. Feedback regarding the content of the SMART-R curriculum from the residents noted that 63% reported that it fostered **connection** and **bonding,** while 87% reported that the skills were **relaxing** and **helpful**. |
| Daniels et al. (2015) | Durham, NC, US.13 undergraduate students | Multidisciplinary | A university’s Center for Translational Heath Equality (CTHER) developed service-learning pedagogy to promote engaged learning to improve the resilience of students.The service learning pedagogy program was facilitated through students collaborating with local elementary school staffs to design an intervention to increase the healthy living activities of students. The program was comprised of four general components: 1) **Preparation** (students designed lesson plans that they would teach curing the ensuing component), 2) **Action** (student teams taught 50 first-grade students at local elementary schools), 3) **Reflection** (students completed reflection in their journals that were discussed later in debriefing groups), 4) **Assessment** (impact assessments via pre- and post-surveys).🡪The program consisted of students developing a project which they later delivered lessons for in-person.  | Relevant themes from student feedback regarding the program included: 1) **Improved perceived resilience** (improved scholarly competence, social skills, emotional support) from engaging in scholarly activities, group meeting, and faculty research mentor interactions.2) **Increased interest in research** (learned content and practical skills, cognitive and affective development, develops sense of self)  |
| Delany et al. (2015) | \*Melbourne, VIC, Australia.6 final-year students at three different universities | Physiotherapy | A psycho-education resilience program was designed to facilitate the development of practical skills-based resilience capacities in health science (physiotherapy) students.The program was based in **cognitive behavioural therapy** (e.g., recognizing locus of control, controlled breathing, time management, increasing pleasurable activities), **strengths-based positive psychology** (e.g., monitoring self-talk, emotional regulation, increasing mindfulness, coping statements based on strengths and past experiences), and **sports and** **performance psychology** (e.g., log achievements, identify career vision, focus on learning process versus outcome of learning) principles. The aim of the program was to trach students to identify and learn about the impact of resilience strategies on their learning experiences through having participants: 1) **Identify personal stressors and responses**, 2) **Choose a resilience strategy**, and 3) **Trial the resilience strategy and record what happens**.🡪The program was delivered via four action research sessions (90 minutes each) led by a clinical health psychologist. | Thematic analysis of feedback interviews regarding the action sessions suggested that the program helped students experience increased levels of **confidence** and **cognitive control** in specific areas previously identified as stressful.Stressors identified related to the demands of balancing study and other commitments, their own concerns and worries and their view of the supervisory process.Common strategies applied and discussed by students included **cognitive control** techniques (e.g., thinking of learning process versus outcome), and **confidence** techniques (e.g., positive self-talk).  |
| Dolbier et al. (2010) | \*North Carolina, US.64 university students | Unclear | Intervention group (n = 31) received a psychoeducational program title “Transforming Lives Through Resilience Education” which was designed to designed to enhance resilience and, when possible, thriving in university students. Program consisted of four general components:1) **Transforming Stress into Resilience**: presented a resilience model with stress responses (‘give up’, ‘put up’, ‘bounce up’ and ‘step up’).2) **Taking Responsibility**: presented a responsibility model with a line drawn between taking and not taking responsibility for one’s behaviour. Participants completed a five-step process to move above the line and take responsibility.3) **Focusing on Empowering Interpretations**: presented the ABCDE thinking model (Activating event; Belief about activating event; Consequence of response to beliefs; Disputing the disempowering beliefs and creating empowering interpretations; Energy to handle the activating event) to help participants change their disempowering thinking into empowering thoughts.4) **Creating Meaningful Connections**: focused on increasing awareness of the links between connecting with, or conversely withdrawing, from social relationships and the impacts of such actions on thinking, behaviour and health.🡪Program was delivered via four weekly two-hour classroom sessions. | Results related to the participant’s profile suggested that the personal characteristics of **self-esteem** and **self-leadership**, and the coping category of **hopeful coping** related to **greater growth**.Results related to the impacts of the program suggested that the intervention significantly increased **total growth**, **appreciation of life**, **personal strength**, and **new possibilities**. Smaller increases were found for the traits of **relating to others** and **spiritual change**. |
| Donovan & Erskine-Shaw (2020) | \*Ormskirk, NW, England.5 first-year undergraduate students | Education | An academic literacy intervention (ARC) was implemented to improve the academic resilience and confidence of students on an undergraduate degree program.Sessions for the ARC program were generally about one hour long and run by a graduate teaching assistant in the department. Program sessions focused on addressing the principal skills of **academic writing**, **reading**, **constructing an argument**, and a**ddressing common barriers to achievement** such as stress. Overall, the program encouraged students to **take ownership**, and **become autonomous in their learning habits**.🡪The program was delivered in sessions that took place during lunch periods between lectures. | Relevant qualitative thematic and narrative analysis of the ARC program analysis suggestions include:1) **Confidence growth** (enhanced self-confidence achieved through academic achievement, developed literacies to succeed in higher educations)2) **Academic support** (recognized resources dealing with stress management may be utilized outside of the intervention sessions)3) **Socialization into the academic environment** (Anxieties may be reduced through shared experiences that allow students to face the challenge of adopting a new ‘academic’ identity more easily)4) **Autonomy and ownership** (participants outlined a clearer idea of why they attended university, and the role of emotional investment in education as a means to take control of learning)5) **The emotional labour of learning** (participants felt they could express their concerns and discuss them together, the program gave them opportunities to share their successes and enjoy camaraderie) |
| Dresen et al. (2019) | \*Wisconsin, US. 11 graduate students | Multidisciplinary | A strengths-based curriculum derived from Clifton Strengths (prominent themes include **strategic thinking, executing, relationship building, and influencing**) was designed to build resilience among adult graduate students who were engaged in a working abroad program. The curriculum included pre-departure activities and in-country activities that would be completed by the students; ultimately the program consisted of five central activities:1) **Individual organization visits** (participants independently researched multiple organizations, gathered contact information, scheduled visits, and conducted interviews)2) **Social interaction and hostel life** (student immersed in hostel life, tasked with menu planning, shopping, preparing, serving, and clean up)3) **Physical activities** (participants engaged in various physical activities during the experience including hiking, biking, and kayaking.)4) **Group organization visits** (faculty researched organizations, found contact information, scheduled the visits, organized public transportation, and provided the organization with questions and topics to discuss. The students were required to attend the visits and actively participate in the discussions)5) **Nightly debriefing sessions** (Faculty scheduled the debriefing sessions every evening as an opportunity forstudents to share what they had done and learned throughout the previous day)🡪 The program was delivered by a faculty member is a certified Strengths Coach and created the reflective environment for students. | Relevant qualitative analysis of the program found that:1) **Individual organization visits** (Participants noted the use of strengths, especially from the strategic and executing domains, helped with adjusting to challenging situations, and thereby contributing to growth in resilience)2) **Social interaction and hostel life** (Social interactions and hostel life provided students with opportunities to further resilience development. The social elements of the travel study offered participants opportunities to engage in daily interactions with one another both formally and informally throughout the day)3) **Physical activities** (participants indicated the hike through Abel Tasman had a positive impact on resilience development … The steep terrain created frustration for most of the students. Indicating use of the Connectedness strength)4) **Group organization visits** (reported that group organization visits contributed to building resilience. During unfamiliar content-area discussions, participants indicated exercising resilience by staying positive and responsive)5) **Nightly debriefing sessions** (participants indicated that the sessions contributed to resilience development. Participants indicated they adjusted their communications during the discussion) |
| Elmi (2020) | \*Harrisonburg, VA, US.45 undergraduate students | Mineralogy | A social and emotional learning (SEL) strategies intervention was implemented to aid in stimulating interest and motivation for learning science and building stress resilience. The course was designed focusing on the **self-awareness, social awareness,** and **relationship skills** SEL competencies.**Self-Awareness** (e.g., Recognizing strengths, Self-confidence, Recognizing filters that impair goodcommunication)**Social Awareness** (e.g., Identifying appropriate socialresources and supports, Respect for others, Listening with understanding) **Relationship Skills** (e.g., Communicating clearlyand effectively, Teamwork, Relationship problem-solving, Conflict management and resolution)🡪The program was delivered through one 75 minute lecture and 2 hour laboratory meeting each week for a semester. | Relevant results include:1) The design of a **positive, inclusionary learning environment can contribute to minimizing stress** related to the assimilation of complex concepts and new terminology. **Planning SEL goals** was time-consuming, but efforts were rewarded by students’ **improved self-confidence, social awareness** (i.e., respect others, understand other perspectives, provide help to those who need it), **motivation**, and **academic achievement**. 2) **SEL led to improved student behavioral skills**. students discovered that they could not succeed and grades could drop if they did not work collaboratively with their classmates and instructor during class meetings. Goal-setting process leads to strong collaboration among students.3) **Review sessions** (evaluation of homework and tests) of 10–15 min helped to define strategies that were either incorrect or unjustifiable, improve the quality of assignment submissions, and develop self-study practices and test preparation approaches that allowed students to retain information and connect it with future learning.4) **Mistakes** were valued as learning opportunities and allowed students to build self-confidence along with knowledge. The prompt and **explicit feedback** included suggestions for improving future assignments and the corrections of conceptual mistakes; thus, students could learn from them. These interventions helped students to keep track of their preparation, accurately judge their own performance, and assess their strengths and limitations. |
| Ewert & Yoshino (2011) | \*Bloomington, IN, US.85 university students | Unclear | A three-week adventure education (AE) expedition program was implemented to enhance the levels of resilience of university students.The treatment group (n=27) participated in a 3-week adventure-based expedition. This expedition was designed to develop outdoor **leadership and adventure education skills**, and involved a variety of outdoor activities such as rock climbing, winter camping, mountain climbing, desert travel, river crossings, and a 3-day ‘solo’ experience in wilderness settings🡪The program was delivered over a three-week period in the wilderness settings of Colorado and Southern Utah. | *only* the treatment group demonstrated significant improvement in the resilience scores as a function of time … suggests that a short-term expedition experience may be influential in enhancing participants’ level of resilience.Significant changes were also observed with respect to resilience items including**: I have enough energy to do what I have to do, I can deal with whatever comes in the future**, and **I actively look for ways to replace the losses I encounter in life**.Qualitatively:Physical conditions (e.g. severe weather, and feelings of physical discomfort) can also be linked to a student’s inner strength (**perseverance**) to overcome both the physical and psychological challenges (e.g. trying hard to not give up, and pushing themselves to go beyond their perceived limits). Thus, perseverance was found to be an important theme throughout the students’ experience.(**self-awareness**) it appears that the expedition was effective in providing opportunities for students to see areas in which they had certain strengths and abilities, and also areas that were challenging for them.Not surprisingly, **confidence** was found to be a prominent theme related to resilience. Even though the ways of expressing confidence were varied, students talked about a growing sense of assurance concerning their abilities. |
| Fried et al. (2018) | \*London, ON, CA.30 senior undergraduate students | Kinesiology | An undergraduate course focused on building resilience among first-year students through physical activity and mentorship activities was implemented for upper-year undergraduate students, or ‘mentors’, Mentors attended a 3-day, 21-hour Leader Effectiveness Training, focused on **interpersonal communication** and **conflict resolution** competencies, to obtain mentorship skills. A 1-hour Motivational Interviewing training was also provided by one of the researchers who underscored the importance of encouraging protégés (first-year undergraduate students) to come up with their own answers to questions wherever possible. Mentors were randomly matched with one to three protégés, whom they mentored for an academic year. The mentor-protégé relationship involved mentors guiding protégés in dealing with stressors. The primary objective was for mentors to engage in PA with their protégés (and to encourage frequent PA) to increase the protégés’ mental health and resiliency. A secondary goal was for mentors to provide support on any topic where and when possible. Mentors were asked to engage with their protégés at least twice a week.🡪The training program was delivered to mentors in a three-day training program, while the mentor-protégés program was delivered via meetings between the parties over the course of a year. | Relevant findings include:Overall, the results of this study revealed few, albeit desirable, statistically significant findings pertaining to participants’ **perceived levels of resilience**, **behavioural control**, and **positive affect** over the course of the program. That is to say that there were significant increases from pre-intervention to post-intervention with respect to these outcomes.Qualitatively, A main finding was that mentors reported a **significant increase in resilience** (BRS) over time, indicating that although the course was intended to benefit first-years, **mentors themselves became more resilient**, and therefore better able to address adverse events during their academic year.Participation in this study seemed to result in **life skill development** and **personal growth**. It was also reported that mentors better understood the impact ofPA on mental health and resiliency, and experienced improvements in dealing with adverse events through PA. |
| Fried & Atkins (2019) | \*London, ON, CA.11 graduate students | Multidisciplinary | A peer coaching program derived from **mentorship**, **motivational interviewing (MI)**, and **Co-Active Life Coaching (CALC)** was implemented for graduate students’ to address stress and anxiety, while enhancing resilience.To provide concrete tools, participants attended an eight-hour **MI-via-CALC** training session presented by the researchers. The training was interactive and included groupwork andcontent- and tool-based handouts (e.g. definitions, suggestions for powerful/open-ended questions, practice coaching). Participants worked in assigned and arbitrarily-matched dyads, which changed seven times throughout the study. This was done to allow participants the opportunity to interact with a diverse group of their peers. Participants agreed to engage in four, 35-40-minute sessions per month – two as coach, and two as client/receiver.🡪 The program was delivered over an eight month period during which … Researchers also met with participants every two to five weeks (n = 8 sessions) for one-hour group check-in meetings to discuss coaching experiences and challenges, and to provide skill refinement. | Qualitatively, all participants reported perceived improvements in their **mental health** and **resilience** and attributed this to their engagement in the Breaking Grad program. Participants reported increased **self-awareness**, **skill acquisition**, the **ability to shift perspectives**, and a **sense of community and support**.Quantitatively, The visual inspection noted improvements: means for every scale increased from pre-intervention to mid-intervention, and from pre-intervention to post-intervention; however, there was no statistical significance with respect to changes in **resilience** or any of the **mental health** indicators (e.g., anxiety, positive affect). |
| Galante et al. (2018) | Cambridge, EE, England.616 university students | Multidisciplinary | An 8 week Mindfulness Skills for Students (MSS) course in the year leading up to the main annual examination period was implemented to help university students (experimental groups, n=309) increase their **resilience to stress**. Adaptations were focused on permeating every session with elements of flexibility, self-discovery, self-compassion, and empowerment, aimed at generating a natural transfer of skills developed in meditation to study, decision making, and relationships. The course aimed to optimize wellbeing and resilience for all students, and was not specifically developed for those with distress in a clinical range.The MSS intervention consisted of a secular, face-to-face, group-based skills training programme based on the course book “Mindfulness: a practical guide to finding peace in a frantic world”🡪 The eight, weekly sessions lasted 75–90 min. Sessions included mindfulness meditation exercises, periods of reflection and inquiry, and interactive exercises. Students were encouraged to also practice at home. | Our findings suggest that the MSS course maintains wellbeing and engenders resilience to accumulation of stress during the academic year, notably during the summer examination period—our primary outcome.MSS improved **wellbeing** during the examinationperiod and after the course compared with support asusualMSS participants reported **fewer problems** affectingeither their study or university experience than did support as usual participants (appendix p 18), but there were no differences in how often they reported they would consider leaving their course, nor in their day-to-day coping with academic workloadIn analysis of secondary outcomes, mindfulness training reduced distress immediately after the course compared with support as usual (table 3). Distress among participants in the support as usual group increased over the academic year |
| Gerson & Fernandez (2013) | \*Thousand Oaks, CA, US.28 undergraduate students (study 1)63 undergraduate students (study 2) | Psychology | Study 1Treatment (PATH) consisted of three 60 to 90 minute meetings, spaced over a 3 week period, to build an adaptive explanatory style in undergraduates. Each meeting presented a scripted lecture about the relevance and components of pessimistic, optimistic, and personal control explanatory styles, accompanied by colorful PowerPoint slides and interspersed with small-group discussions of thought questions distributed in two handouts.Session 1 (e.g., Importance of building resilience to stress: Self-perpetuating cycle between feeling overwhelmed and responding maladaptively; Ellis’ A-B-C model and impact of cognitions on feelings and behaviors; Pessimistic explanatory style: Internal, stable, and global attributions for negative events)Session 2 (e.g., Getting perspective: Considering worst, best, and realistic outcomes; Being realistic: Considering likely outcomes and their positive elements; De-catastrophizing: Maintaining specificity regarding negative events)Session 3 (e.g., Benefits of taking personal responsibility and active skill-building; Importance of active, assertive problem-solving; Process of active problem-solving: Identifying goals and realistic possibilities, taking action, and evaluating outcomes) 🡪Study 2Again, because of time constraints, the PATH was condensed to three 30 to 50 minute sessions, spaced over a 5 to 6 day period. Its purpose was to teach undergraduates an adaptive explanatory style in order to promote thriving and resilience. Sessions were similar in form and content to those described in Study 1 (see Table 1) with several exceptions.The three dimensions of explanatory style were translated into a three step process, beginning with a focus on decreasing perceived globality (Step 1: getting perspective by seeing the event as specific and limited), followed by increasing unstable (temporary), internal attributions (Step 2: considering whatchangeable aspects of one’s self or behaviors may have been to blame or could be changed for the future), and ending withdecreasing perceived stability (permanence) in general (Step3: realizing that bad things do not last forever, so it is important to know when to “let go”). | Study 1The PATH had a significant impact on undergraduates’ use of personal control and optimistic explanatory styles, as well as on their level of thriving. As in other resilience building programs that build an optimistic explanatory style, the PATH also significantly reduced participants’ depressive symptoms. Scores improved significantly from pretest to posttest each time treatment was delivered, whereas no significant improvement occurred during the same periods for the comparison group.The students related a range of stressful events, primarily related to academics (e.g., grades, assignments) and interpersonal conflicts (e.g., disagreements with roommates, relationship break-ups). On the one hand, strategies involving active problem-solving were described by many participants when asked for “adaptive” responses and were named as a key component in “healthy” responses by all. For example, students noted such approaches as considering what they could do better next time or analyzing the stressful situation. On the other hand, many participants also gave examples of what may be termed a *positive mindset*, such as reminding themselves that a stressful situation would pass and that it was not the sole factor in their lives.Study 2The PATH was again successful in increasing resilience and the effect size was large. Whereas Study 1 compared the PATH with a waiting list control group, the present study compared it with a placebo treatment, matched in every way except for content. Despite ratings indicating that participants found both programs to be worthwhile and successful in teaching them something about coping with stress, only participants in the treatment group changed significantly on any of the measures. |
| Gilmore et al. (2019) | Melbourne, VIC, Australia.43 students involved in quantitative feedback9 students involved in qualitative feedback | Education | A pre-graduate diploma of education (PSDE) course with an emphasis on developing **resilience**, the **capacity of an****individual to withstand difficulties**, and **relational resilience**, a capacity to develop empathy with others, was implemented for non-traditional students in a teaching program.this PSDE was structured to align with a ‘transition pedagogy’ that argues for universities to be specific and holistic in developing courses to scaffold and support entering students … the PSDE course sought to positively value and tap into the cultural and linguistic diversity of the student cohorts, and to ‘find ways to enable non-traditional students to draw on the rich cultural resources, alternative knowledge and ways of knowing the rich cultural resources they bring with them to the course’The PSDE is a year-long intensive program with 16 weeks per semester in contrast to traditional 12- week teacher education units. The course is supported by a government initiative called Integrated Education Programme (IEP) … More emphasis is therefore placed on ensuring the creation of **functional interpersonal group working relationships**, a collegiate approach to learning, the **building of interpersonal bonds**, as well as, where necessary, **conflict resolution**🡪 | Students connected the course curriculum and future teaching roles including teaching placement with their responsibilities as citizens and as future teachers. The first connection related to how they needed to frame diversity through ‘**accepting difference** and embracing that this is a good thing because everyone in the course is different and just like students you will teach, they are different and diversity should be embraced’.This feedback from students suggests that the **social connections** student teachers on the course formed with each other, encouraged new ways of looking at the world through experiencing unfamiliar points of view and **fostering empathy** with others whom we perhaps may not have ordinarily engaged with outside the course and its very deliberate social structure.students were given **agency to reflect** on themselves as teachers and learners in the world. This tended to shift the emphasis of the education from within the walls of the institution and placed it in the self of the students and teachers, reflecting on human experience generally, rather than knowledge transfer or even the overt experience of learning in a pedagogical environment. The sense **of mutual empathy and reciprocity** within the group discussion was further evident later in the discussion |
| Goertzen & Whitaker (2015) | \*Hays, KS, US.Undergraduate students (group numbers varied by program delivery modality) | Organizational Leadership | An academic-based, leadership education program based on the development of psychological capital (PsyCap) was implemented to build self-efficacy, optimism, hope, and resiliency in undergraduate students.The leadership education program relevant to this study has identified ten learning objectives that are framed around both understanding and action. Of the ten objectives, several are generally aligned with the PsyCap dimensions previously identified, including, “demonstrate **initiative** to both **introduce change and persist to see change through to its completion**” (analogous to resiliency), “**examine personal strengths and limitations** and **demonstrates ability to integrate feedback for improvement**” (analogous to both self-efficacy and resiliency) and “**identify the leadership challenges of a given context** and d**esign plans for what ought to be**” (analogous to both optimism and hope). In addition, one of the identified graduate characteristics from this program is for students to be “**self-reflective**,” including knowing strengths and weaknesses, engaging in continual personal development and being emotionally intelligent.PsyCap is defined as: […] an individual’s positive psychological state of development and characterized by: 1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; 2) making a positive attribution (optimism) about succeeding now and in the future; 3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and 4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success (Luthans et al., 2007, p. 1).🡪 The leadership education program was delivered via three different modalities to distinct groups: traditional face-to-face; online; and a blended model delivered to students at international partner institutions. | The post hoc analysis of the overall sample indicated that there were significant differences between Time 1 and Time 2 for each of the five dimensions (self-efficacy, optimism, hope: dispositional, hope: states, resilience) at the 0.01 level (see Table II). Similarly data indicated significant differences between Time 2 and Time 3. However, only two dimensions (self-efficacy and optimism) were significantly different between Time 1 and Time 3. |
| Houston et al. (2017) | \*Columbia, MO, US.129 undergraduate students | Unclear | Participants in the experimental group (n=64) were exposed to a resilience and coping intervention (RCI) that aimed to improved students capacity to engage in **positive coping and resilience** through helping participants to identify thoughts, feelings, and coping strategies related to issues following problematic experiences or everyday stressors.The intervention was carried out over a three week period during which the RCI model was followed: When working through the RCI process in a group setting with peers, participants have opportunities to share and validate their own experiences, recognize that others have similar thoughts and feelings related to a shared problem, express and process their thoughts and feelings related to a problem, correct cognitive distortions, recognize their own existing coping strategies, learn new coping strategies from peers, connect to supports, learn problem solving, and gain satisfaction from helping others.RCI sessions are intended to allow group members to discuss shared problems. These problems can be identified by participants as part of the session or can be identified in advance by facilitators (eg, a recent community disaster). For the current study, RCI group participants identified their own shared problems to discuss during the RCI sessions in Weeks 1 and 2. Group identified problems included stress (general and academic), future (career) concerns, time management challenges, and roommate and relationship problems. For Week 3, we provided participants with a list of possible problems (fitting in on campus, problems with instructors and professors, drinking and substance use, relationship problems, depression and anxiety, and grief and loss) and instructed group participants to select from that list.🡪The RCI was delivered over three 45-minute sessions in subsequent weeks led by licensed social workers and graduate students. | Overall, our results provide **preliminary evidence that RCI is an effective resilience intervention for use with college students**. Mixed-effects models indicated that intervention participants reported **significantly more hope and significantly less stress and depression from pre- to post-assessment compared with control participants**. The strongest intervention effects were the moderate effects of RCI on student stress. The intervention was conducted during the spring semester, which is reported to be the most stressful semester for students.31 Depression and stress are 2 of the most frequent mental health concerns reported by college students,1,3 and RCI was able to significantly improve these outcomes for intervention participants compared with students who did not participate in RCI. **Our results also indicated that intervention participants approached a significant increase in resilience from pre- to post-assessment compared with control participants**. |
| Kwon et al. (2020) | Pullman, WA, US.52 undergraduate students (study 1)11 undergraduate students (study 2) | Unclear | An intervention designed to improve academic persistence among undocumented immigrant university students provided the experimental group (n=26) in Study 1 a self-help workbook based on three resilience factors (**social support**, **hope**, and **emotional openness**), while in study 2, participants (n=11) weekly group meeting led by co-facilitators.The workbook contains three sections, one for each key resilience variable: **social support** (e.g., Available university resources, Exercise in setting goals to increase social support,Importance of advocating for oneself), **hope** (e.g., testimonials about the value of hope, Identifying one’s valuesValues clarification exercise), **emotional openness** (e.g., Importance of accepting one’s emotions, How every emotion can be adaptive in certain situations). We incorporated colorful graphics and hands-on exercises that readers could complete in the workbook … included inspirational stories from alumni who were once undocumented students in college … included resources available to students at Washington State University, as well as links for online resources and videos …🡪Delivery of the program was carried out over 10 weeks with students being instructed to fill use their workbook each week via weekly email reminders (study 1); and group meetings for eight weeks for in-depth discussions about the workbook expeirence (study 2). | Study 1: (qual) The most helpful part about theworkbook was all the **resources listed** that are available to undocumented students … **Writing down my feelings in response to the questions** is something I rarely do, but it felt different in a good way … The chart on page 16 to **help me set goals based on values** was really helpful …Study 2: (qual) they are not alone in their experience … participants who had already utilized these resources within the university played an important role in encouraging other students to do so as well … participants reported that the group experience facilitated the expansion of social support outside of the group setting … participants reported that the group encouraged them to set higher goals,increased their level of hope, and increased their motivation …  |
| Lee & Mason (2019) | Baltimore, MD, US.37 college students | Unclear | A dialectical behavior therapy-informed (DBT) skills training program was implemented for those in the experimental group (n=18) to enhance the psychological resilience of college students with mental health issues (e.g., anxiety, academic issues, emotion dysregulation).Program group meetings consisted of a brief mindfulness practice followed by psychoeducation and discussion. Throughout the entire program, core mindfulness skills (i.e., “what” and “how” skills) were repeatedly emphasized and incorporated into discussion. Modules included: **mindfulness** (e.g., setting goals, sources of stress, mindful breathing), **thought as thought** (e.g., building a life worth living, Pleasurable activities, common thinking traps), **emotion as emotion** (e.g., Functions of emotion, Wise mind, Model for describing emotions), **interpersonal effectiveness** (e.g., Relationship effectiveness skills, Self-respect effectiveness skills).🡪The intervention was delivered via 1.5 hour training group meetings over a 4-week period co-led by a combination of one licensed psychologist and three unlicensed doctoral trainees. | The DBT-informed group members showed significant increases both in **resilience** and in **global mental health**. In other words, DBT-informed group participants showed improved **resilience** in **self-care**, **social connections**, **life skills** and/or **cognitive style** and improved **global mental health** through well-being, symptom reduction, and/or positive life function. |
| Maddi et al. (2009) | Irvine, CA, US.727undergraduate students | Unclear | Experimental group participants (n=349) received the Hardiness Training intervention which was designed to increase in hardiness attitudes and skills as means to improve resilience and performance effectiveness among undergraduate students.The hardiness training course taught participants how to utilize particular techniques and develop particular attitudes that would facilitate turning the stressful circumstances from potential disasters into growth opportunities. The focuses targeted increasing five domains of functioning: 1) **hardy coping** **with stressful circumstances** by building perspective, understanding, and taking resulting actions to resolve the problem, 2) **hardy social support** by interacting in a manner that decreases conflicts through a pattern of mutual assistance and encouragement, 3) **hardy relaxation** by practicing breathing, imagining, meditating, and various muscle awareness techniques, 4) **hardy eating** by following nutritional principles of balance and moderation, 5) **hardy physical activity** by exercising according to principles of progression and specificity.🡪The Hardiness Training intervention was delivered via two lectures a week over the course of an 11-week period. | Relevant results included: The Hardiness Training Group showed significantly **higher GPAs** at the end of the training, and their **GPA at time of graduation** (between 6 and 24 months after training) was sustained (Hardiness Training Group relative to Comparison Group).Participants who completed the Hardiness Training course increased in **hardiness attitudes** and **skills**. Cumulatively, the results suggests that it is primarily the **existential courage constituted by Hardy Attitudes** that facilitates college performance, with **problem-solving coping** and **social support** being less important. |
| Monteverde (2014) | Bern, BE, CH (SUI).93 undergraduate students | Nursing | An ethics module inspired by pragmatist learning theory and recent moral resilience scholarship was implemented to improve the resilience of nursing undergraduate students.The curriculum was developed based on the principals of pragmatist learning theory which outlines that, experience does not stand in an ancillary function to theory, but validates the latter and vice versa. The program’s pragmatism, by **connecting ethics teaching to the “moral interactions” and “transactions” of students with the professional moral world**, offers a new perspective on the role of ethical theories. Features of curriculum included: 1) **two problem-based learning (PBL) group tutorials** (used different resources covering ethical theories: deontology, consequentialism,the ethics of care, and principlism); 2) **a domain-specific lecture** (loosely related to the situation the students deepen in the PBL group sessions); 3) **an expert talk** (students discuss openly further aspects of the problem emerging from the PBL and the lecture); 4) **a skills training** (ethical decision making and the use of decision-making aids are trained).🡪The module was delivered via tutorials and lectures. | Relevant findings from the survey evaluation (n=58) included:Ethical theories are helpful with respect to **answering ethical questions** and **making decisions**, and are considered to be a factor that **increases moral resilience**. Theories may assist in achieving a reduction of ethical complexity (frame) or by a normative judgment (name) about the ethical acceptability of a given situation and the subsequent planning of an adequate moral response. Most students reported that **Principlism** (emphasis on respect for autonomy, nonmaleficence, beneficence, and justice) helped them in answering ethical questions, followed by **Consequentialism** (emphasis on an act being morally right depends only on the consequences of that act or of something related to that act). |
| Neill & Dias (2001) | Australia72 young adults (experimental group: mean age 21) | Unclear | Individuals in the experimental group (n=41) participated in a 22-day multi-element Outward Bound program that was designed to address personal development through a guided experiential education approach.Activities engaged in were varied and included, but were noted limited to: expedition, initiative tasks, navigation, communication skill sessions, goal setting, group debriefings, rafting, a final expedition without an instructor, and a cross-country run. Group development activities included: initiative tasks, debriefing, and individual and group feedback sessions.🡪Program was a 22-day program delivered in an outdoor setting. | Evaluation results noted that:Regarding **resilience** scores, there was a very large effect size for the intervention group between the beginning and end of the program, suggesting the program was successful in enhancing resilience.Additionally, for the 14 participants who did not complete the program (medical or personal reasons), the group had significantly lower initial **resilience** scores, suggesting that resilience measures may be a useful screening tool for identifying participants who are at risk of dropping out of programs.  |
| Pines et al. (2014) | \*San Antonio, TX, US.60 undergraduate students | Nursing | A two-semester intervention featuring simulated experiences was implemented to enhance stress resiliency, psychological empowerment, and conflict management skills among 60 undergraduate nursing students.The intervention was based on the **Reaching Out and Reaching In** curriculum and utilized didactic and a variety of simulated training of scenarios for teaching resiliency skills, enhancing perceptions of empowerment and increasing knowledge of personal styles of conflict management. Altogether, the program consisted of four modules:1) Module 1 focused on the **principles of resiliency** and **behaviors of resilient nurses**.2) Module 2 content engaged students in **professional empowerment and disempowerment strategies** in the workplace.3) Module 3 focused on analyzing the **advantages and disadvantages of the 5 conflict management styles** (five simulated scenarios provided students the opportunity to apply knowledge and skills to manage conflict with colleagues and patients).4) The 4th module used content from TeamSTEPPS, an evidence-based teamwork training system. The program included a series of **interactive didactic and discussion group sessions, role playing, and videotaped scenarios**.🡪The modules of the program were delivered in-classroom during three-hour class periods.  | Relevant results related to the program evaluation noted that:There was little to no significant changes in **empowerment** and **stress resiliency** after training.Student reported preferences for managing conflict indicated a relatively high level **of accommodating style** (unassertive and highly cooperative, neglectful of personal concerns) at the start of the program and an increase in **compromising styles** (both assertive and cooperative, a partial satisfaction of personal concerns) at the program’s close.The least preferred conflict management style by students was **collaborating the situation** where all needs of both parties are met. |
| Reyes et al. (2020) | \*Las Vegas, NV, US.9 college student veterans | Unclear | Acceptance and Commitment Therapy-based (ACT) intervention was implemented to promote resilience among college student veterans with posttraumatic stress disorder.10 ACT exercises were used: seven audio-guided meditations, one journaling exercise, and two videos. **Seven audio-guided exercises** included: 1) **Observing** Self, shorter version(i.e., exploring and applying the concept of “Self-as-Context” in ACT); 2) **Observing Self, longer version** (i.e., a longer variant of #1); 3) **Yes-and-No**(i.e., mentally saying “no” and then later “yes” to the sensations felt on one’s back while seated against a chair); 4) **Acknowledging Thoughts**(i.e., noticing the flow of thoughts as if they were cars passing by); 5) **Being Mindful of Feelings**(i.e., observing and noticing one’s emotions, rather than being attached to them); 6) **Leaves on a Stream**(i.e., visualizing floating leaves on a moving water stream and placing each observed thought on a top of a moving leaf); and 7) **Dandelion Exercise**(i.e., paying attention to painful emotions or sensations and visualizing these internal experiences like the seeds of a dandelion blowing into the wind).The **journaling exercise** instructed participants to first identify a thought, then attempt to both avoid (suppress or not think about) and allow it (simply notice or observe), and then reflect on the experience by writing a journal on the app.The **two videos** were the **Flow of Thoughts and Feelings**(based on an ACT concept of the transient flowof thoughts, feelings, and sensations) and **Struggling with Difficult Feelings**(based on an ACT concept of the consequences of unnecessary struggling with difficult emotions).🡪Intervention was delivered via a smartphone application. | Relevant qualitative findings from the app evaluation included:1) **Instituting a sense of progress** (the app-based intervention enhanced their knowledge and skills about ACT)2) **Integrating a sense of rhythm** (benefits of regular use; being able to de-stress after a busy day or becoming more able to focus on the present, rather than feeling worried about the future or remorseful about the past)3) **Inculcating a sense of contribution** (developed a willingness to help colleagues to enjoy similar benefits; this themes is rooted in a strong military altruism culture)Relevant quantitative findings from the app evaluation included:1) **PTSD** and **rumination** scores consistentlyDecreased from pre- to mid- to post-intervention.2) Average scores for **resilience** consistently increased across the evaluation time points.3) Patterns regarding **experiential avoidance** were inconsistent, although scores a t post-intervention were lower than pre-intervention scores. |
| Robinson et al. (2021) | \*Greenwich, London, England.Study 1: 65 first-year undergraduate studentsStudy 2: 145 university students  | Psychology (Study 1)Multidisciplinary (Study 2) | The titled “Resilience Enhancement Programme for Students” (REP-S) was delivered to two study population samples in furtherance of enhancing their resilience to stress.The REP-S program is centered on three activities:1) **Psychophysiological (mind-body) resilience**: breathing techniques (intro materials, square breathing exercise), mindfulness meditation (intro materials, five-minute body scan exercise).2) **Cognitive resilience**: positive reframing, including reframing beliefs about failure (Introduce the ABC technique [Activating Event, Belief, Consequences], failure associations exercise, discussion of how failure can lead to positive change), and goal setting and planning (goal setting theory introduced, create list of performance and mastery goals for next assessment and their time in university exercise).3) **Social resilience**: effective help-seeking (discussions of help-seek behaviours, discussion of how social media and how it relates to resilience, develop a list of potential people as sources of support exercise), assertiveness (explore five assertiveness techniques [assertive body language, empathize, “I” statements, solution focus, and good ways of saying “no”], role-play scenarios) 🡪Both Study 1 and Study 2 interventions were delivered via face-to-face interviews. | Study 1 (quantitative evaluation): over a period of one month, those in the intervention group (n=36) reported significantly decreased **perceived stress**, decreased **trait neuroticism**, and **enhanced self-esteem**.Study 2 (qualitative evaluation): relevant themes included learning **stress management techniques** (applying techniques to deal with general stress), **how to cope with exams** (responding in more productive ways), **dealing with interpersonal challenges** (easier to deal with potential stressful interpersonal situations), and **sleeping better**. |
| Rose et al. (2013) | Los Angeles, CA, US.66 graduate students | Multidisciplinary | Each session begins with a “stress briefing” covering educational aspects of stress management, such as the importance of maintaining healthy habits (e.g., regular sleep and exercise). Each session contains at least one activity from each of the following domains: feelings, thoughts, and actions. Feelings activities (i.e., Biofeedback Challenge, Guided Muscle Relaxation, Focused Breathing) address emotion/physiological regulation skills. Focused Breathing is diaphragmatic breathing, Guided Muscle Relaxation is a traditional progressive muscle relaxation activity, and the Biofeedback Challenge is a video racecar game developed by a third party company (SomaticVision, Inc., 2009) where users breathe smoothly and evenly to accelerate their racecar. Thoughts activities (i.e., Compartmentalization, Weighing Evidence) teach the user cognitive flexibility and a structured approach to realistic/logical thinking with personally relevant stressful content. In Compartmentalization, the user imagines a stressful scenario, then shifts their attention to perform a task quickly and accurately without being distracted by their stressful image. Weighing Evidence is a cognitive restructuring activity (e.g., hypothesis testing, assigning realistic odds). Action activities (i.e., Effective Communication, Strategic Problem Solving, Resilience Thru Writing) teach the user to take effective actions to manage stress in their lives. Effective Communication teaches assertive communication strategies through an interactive video scenario where the user chooses responses for a couple who is at the precipice of an argument. Strategic Problem Solving is a self-guided version of problem solving therapy, and Resilience Thru Writing is a journaling activity.🡪The intervention was carried out as a self-guided, multimedia (via computer) intervention over six weekly sessions. | On measures of self-report, participants in the SMART-OP group reported significantly greater reductions in perceived stress and increases in control over stress as compared to the AC group from pre- to post-assessment, with medium to large effect sizes. The participants in this study were graduate students enrolled in demanding programs with very high performance expectations.Since we excluded individuals with medical or psychiatric conditions, these findings may have relevance to other similar populations who are healthy and work in challenging environments.Additional data on implementation with individuals who work in challenging environments (e.g., astronauts or military) is needed.The results suggest that our brief program can significantly improve perceived stress and perceived control over stress in individuals who are functioning well already |
| Shillington et al. (2021) | London, ON, Canada.112 university students | Multidisciplinary | Kindness-based intervention featuring a stress management feature that is targeted at improving student’s resilience, social interaction anxiety, affect, and mood. The “Deliberate Acts of Kindness” (DAK) intervention and stress management logs were implemented for the intervention group (n=56). Over a one-month time period, participants **joined a study-dedicated OWL** (university online learning management system) **webpage that facilitated them** **connecting with, supporting, and sharing experiences/ideas with each other around DAKs**, and were instructed to engage in a minimum of **three acts of kindness per day** for one month. 🡪Program was delivered via a university online learning management system. | Quantitative evaluation: those in intervention group reported significantly improved **resilience**, **social anxiety**, and **negative affect** scores.Qualitative evaluation (content analysis): some of the relevant themes from the open-ended feedback included 1) **increased self-reflection** (helped individuals to reflect on their emotions and/or mood), 2) **positive impact** (participants reported the program was an enjoyable experience), 3) **improved mental health** (stress management, mood, wellbeing, self-esteem), 4) **fostered a sense of purpose** (meaning in everyday acts), 5) **positive empathy** (improved mood and gratification after seeing the positive impact of DAKs), and 6) **enhanced social connection** (fostered a sense of community). |
| Slavin et al. (2014) | St. Louis, MO, US.Medical students were the target group (enrollment ranged from 175 to 178 students per cohort) | Medicine | Curricular change program designed to improve medical student’s mental health and resilience through creating a new integrated and multifaceted curriculum.Program instituted principles of positive psychology to inform design. Pass/fail grading system for preclinical courses was replaced with replaced an **honors/near honors/pass/fail grading system** to reduce stress. **Contact hours were reduced** by ~10% to allow students more educational opportunities. **Longitudinal electives were instituted** to allow students more time to explore their interests and create mentorship relationships. **Established five learning communities** (service and advocacy, research, global health, wellness, medical education) to develop new electives, lunch lecture series, and expand service and research opportunities.🡪Multi-year curriculum development program. | By the conclusion of years one and two trends between cohorts (pre-curricula changes vs. post-curricula changes) observed that post-change classes exhibited lower rates of **moderate-to-severe depression symptoms**, **anxiety**, and **stress** levels relative to the pre-change cohorts. The post-change cohorts also reported higher levels of social cohesion compared to the pre-change classes.Regarding wellness programs (i.e., student programs/activities that promote effective stress management, a balanced lifestyle and overall wellbeing), students’ **satisfaction with the implemented wellness program** increased from average of 3.6 (out of 5) for the class of 2010 to 4.4 for the class of 2013 (national average was 3.9). |
| Stallman (2011) | \*Brisbane, QLD, Australia.247 undergraduate students | Psychology | The intervention was called “Staying on Track” and featured a 90-minute, strengths-based, resilience-building seminar designed to increase resilience literacy, resilience, and help-seeking university students.The program introduces students to six building blocks of resilience (**realistic expectations, balance, connectedness, positive self-talk, stress management, taking action**) and includes didactic teaching, video segments and large group discussions. Trained facilitators led large groups of students through the program.🡪The intervention was delivered via a lecture. | The vast majority of students indicated that they found at least one learned strategy useful in planning for changes, with the most frequently reported strategies being: 1) **building balance in their lives**, 2) **managing stress**, 3) **increasing positive self-talk**, and 4) **developing more realistic expectations**.Other takeaways from the intervention experience highlighted its effectiveness in: **affirming existing strengths** (the intervention was a useful reminder), **normalizing the experiences of being a student** (students becoming aware that they are not alone in their experiences), **increased self-efficacy** (an appreciation of not being told what to do and feeling more confident and competent to independently make changes), and **small changes … big differences** (small changes can have positive impact on their wellbeing).  |
| Steinhardt & Dolbier (2008) | \*Texas, US.57 university students | Multidisciplinary | The intervention for those in the experimental group (n=30) was a four-week program designed to enhance the resilience, coping strategies, and other protective factors of students during a period of heightened academic stress. The resilience intervention was called “Transforming Lives Through Resilience Education’ and included four two-hour classroom sessions:1) **Transforming stress into resilience**: participants were shown a resilience model outlining four response paths (succumb, put up, bounce up, thrive). Coping categories were also discussed (problem focused, emotion-focused) and linked to the resilience model paths.2) **Taking responsibility**: a responsibility model was presented to participants, and a five-step process designed to help students achieve taking responsibility for managing their stressful situations was implemented.3) **Focusing on empowering interpretations**: *ABCDE* thinking model was used to change participant’s disempowering thinking into empowering interpretations. (A=activating event or stressor; B=belief, the disempowering or negative thoughts about the activating event; C=consequence, how one feels and behaves in response to one’s beliefs or thoughts; D=disputing the disempowering beliefs and creating empowering thoughts of the situation; E=energy one has available to handle the activating event) 4) **Creating meaningful connections**: aimed at improving participant’s awareness of the relationships between connecting with or withdrawing from social networks and the consequent impacts on thinking, behavior, and health. Promoted strategies of self-leadership (extent to which one abides by a core Self—an active yet compassionate inner leader with perspective and vision).🡪Intervention sessions conducted via classroom meetings. | Pre- to post-intervention analyses observed that, at post-intervention, students in the intervention group reported significantly higher scores of **resilience**, more effective **coping strategies** (higher problem solving, lower avoidant), higher scores regarding **protective factors** (positive affect, self-esteem, self-leadership), and lower scores with respect to **symptomology** (depressive symptoms, negative affect, perceived stress). |
| Stephens & Gunther (2016) | \*Tennessee, US.70 undergraduate students at two universities | Nursing | Over a six-week time period students in the experimental group (n=35) were sent educational messages and/or questions based on the National Center for Victims of Crime Virginia resilience project.The messages focused on enhancing a variety of important protective factors related to resilience: week 1) **social support**; week 2) **positive emotions**; week 3) **humor**; week 4) **knowledge of health behaviors**; week 5) **self-knowledge**; and week 6) **effective coping**.🡪The intervention was delivered over Twitter to the participating students. | Qualitative content analysis used for analysis.Feedback indicated positive sentiments regarding the interventions effects on **pushing students to** 1) **consciously work to relieve stress**, 2) **enhance their positive thinking**, 3) **remind themselves to relax and engage in self-care** (e.g., do things that make one happy). |
| Van der Riet et al. (2015) | Callaghan, NSW, Australia.10 first-year undergraduate students  | Nursing and Midwifery | The intervention was a seven-week stress management and mindfulness program targeted to nursing and midwifery students as a learning support and stress reduction method.Each weekly session involved a didactic component and an experiential component designed to inform students as well as provide them with a range of relevant exercises. Taught practices were often therapeutic and included: **sitting mindfulness practices** (participants were encouraged to sit and focus their attention on observing their breath, bodily sensations, emotions or thoughts), and **mindful walking** and the **body scan** (awareness of the body and bodily experience at a particular moment in time). Data were collected via interviews after the completion of the seventh and final weekly session.🡪The stress management and mindfulness program was delivered via one-hour weekly sessions run by counsellors. | Qualitative thematic analysis suggested three themes: **attending to self**, **attending to others**, and **attending to the program**.**Attention to self**: a focus on and commitment to self-care activities. Sub-themes included: building **self-awareness** to recognize incidents of heightened stress, and then subsequently taking action to address the situation; developing **self-management** to improve individual capacity regarding behavioural activities (e.g., sleeping patterns); supporting **focusing on study**, improving clarity of thought and focus through intentionally ‘being present’. **Attending to others**: using mindfulness techniques to improve abilities in relational contexts (e.g., balancing personal life and professional deamnds). **Attending to the program**: attending the different intervention sessions. One relevant sub-theme was **practicing between sessions**, or continuing to practice learned mindfulness techniques at home. Students also indicated a preference for **the body scan** method. |
| Wang et al. (2017) | \*Hong Kong19 first-year undergraduates | Unclear | A **structured group sandplay method (SGSM)** intervention was implemented for students with poor psychological resilience. **Sandplay therapy** is a Jungian psychological therapy that provides an individual the ability to create a concrete manifestation of their inner imaginary world using sand, water, and miniature objects in a protected space.The SGSM intervention included eight sessions: 1) structured group activities and games, 2-7) with the guidance of the group leader, all of the group members participated in and made a sand-world together, engaged in SGSM discussions, and filled out self-reflection questionnaires, 8) self-reflection questionnaires of the six SGSM sessions were sorted and then their feedback was provided to participants.🡪 Eight two- to three-hour group interventions were delivered once a week (six of which were SGSM) to the intervention group (n=9). | **Sandplay therapy** (quantitative eval.): the intervention significantly increased the resilience scores of those in the intervention, suggesting a significant rise in resilience. Likewise, the intervention significantly improved the overall mental health condition of those in the intervention group.**Sandplay therapy** (qualitative eval): Feedback indicated that, generally, individual’s perception of each others’ strengths was higher than their own self-perceived strengths, suggesting it may be harder for low resilience students to experience self-esteem (i.e., perceived self-strengths). Additionally, it was indicated that it is easier for low resilience students to experience others’ support for themselves, than to give their own support to others.  |
| **Notes**: \* beside a location is used to denote that the article did not explicitly state a location for their study, so the first author’s geographic affiliation was used as a proxy for location | The term “university students” is used to denote any mix of undergraduate and graduate level students in a sample population, or in instances where it was unclear what the degree composition was of the sample population … |

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