Moving Policy Upstream to Advance Adolescent Flourishing Rapid Evidence Review:

Appendices

September 30, 2019

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Moving Policy Upstream to Advance Adolescent Flourishing

Rapid Evidence Review Appendix 1: Key Definitions

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Key Definitions

Active School Travel/Transport. Non-motorized personal mobility (e.g., walking, cycling) to and from school.[1]

Cognitive Autonomy. Cognitive autonomy includes the ability to assess one's thinking process and to make logical deductions, express one's stance, create and consider different alternative and their outcomes, conduct validating comparisons, and self-evaluative and self-reflection skills. Thus, cognitive autonomy and self-efficacy tap complimentary self-beliefs and thinking skills that are integral to decision making processes.[2]

Cognitive Behavioral Therapy (CBT). The key focus of CBT is on how individuals perceive and interpret meaning in their daily lives and often involves working to modify unhelpful or dysfunctional thoughts and behaviors through a variety of methods.[3]

Community. Communities are aggregates of people who form a loosely cohesive association within a residential space or district; they represent a subpopulation of a larger unit such as a city, or they can be indigenous and ethnic groups that may not reside in immediate residential proximity but possess a common community identity.[4]

Community Coalitions. Community coalitions are one strategy in the wider range of community-based co-operative programs that involve community members in programs to improve population health (e.g. community-based participatory research, lay community health workers, advisory boards that include community members). Specifically, community coalitions are conglomerates of citizen groups, public and private organizations, and professions that are characterized by representation from multiple community sectors in bottom-up planning and decision-making. They operate through partnerships and emphasize using local assets and resources to build community capacity. The focus of a community coalition may vary depending on the sectors of the community involved (e.g. education, public safety, public health).[4]

Community Infrastructure. The physical places and spaces where people can come together, formally or informally, to interact and participate in the social life of the community.[5]

Contemplative Education. Contemplative education is "a set of practices that may foster particular forms of awareness in students, forms conducive to the conscious motivation and regulation of learning, and also to freedom and transcendence in life more generally."[6] Examples include Transcendental Meditation and Mindfulness.

Emotion Regulation (ER). Processes by which individuals respond to, manage, and modify emotional experiences in order to achieve individual goals and meet environmental demands.[7]

Emotional wellbeing. Emotional well-being involves the presence of positive emotions and satisfaction with life.[8] In the early 2000s, Keyes measured emotional wellbeing as answers to how often during the past month teens ages 12 through 17 felt: happy; interested in life; and satisfied.[9,10]

Exergames. Also known as active (video) games, exergames allow players to perform physical activity over the course of play.[11]

Flourishing. According to a New Zealand Mental Health Foundation, flourishing as defined in international literature is a state where people experience positive emotions, positive psychological functioning and positive social functioning.[12] Keyes posits that a spectrum from flourishing to languishing is part of a two-continua model of mental health.[13] Keyes measured flourishing through moderate mental health, through languishing, for 12-17-year-old U.S. adolescents in an early 2000s nationally representative survey.[9] Flourishing required an average score of 5 or 6 across items in the domains of emotional, psychological, and social wellbeing. Another definition of flourishing through languishing can be found in the U.S. federally-supported National Survey of Children's Health (NSCH), via responses to 3 items from parents of 6-17 year-olds.[14,15] The items used by Keyes and the NSCH can be found in Appendix 2 of this document.

Health Promoting Schools. The World Health Organization (WHO) Health Promoting Schools framework is based on an eco- holistic model, recognizing the physical, social, mental, emotional, and environmental dimensions of health and well-being. Three domains recognize different levels of influence upon health - moving from the individual, to the school environment, to the wider community context - and emphasize the need to act upon all three levels in order to successfully influence health.[16]

Heritage-based interventions. Designing, modifying, and/or delivering historic places or assets as a key element of an activity that has an observed impact on people.[17]

Intangible Asset. As defined by the What Works Well Being Centre, intangible asset means things like traditional or cultural customs, practice, skills or knowledge.[18]

Gendered health programs.

- **Gender-neutral health programs.** Health programs that did not incorporate any gender-focused aims or tailored interventions.[19]
- **Gender-sensitive programs.** Health programs that recognize the specific needs of their targeted gender in response to socialized gender roles, specifically tailoring program information to that target gender.[19]
- **Gender-transformative programs.** Health programs that aim to rework maladaptive gender roles and promote gender equitable relationships.[19]

Languishing. Languishing is the absence of positive mental health. Languishing individuals are those who are stuck in life, feel empty, and lack interest and engagement. Keyes defined languishing for teens ages 12 through 17 as an average score of 1 or 2 across items in the domains of emotional, psychological, and social wellbeing.[9]

Life Skills Training. Typically focused on teaching social resistance skills or a set of general life skills either alone or in combination.[20]

Loneliness.

- Emotional loneliness describes the absence or loss of meaningful relationships that meet a deeply felt need to be recognized and 'belong.'[21]
- Existential loneliness refers to an experience of feeling entirely separate from other people, often when confronted with traumatic experiences or mortality.[21]
- Social loneliness refers to the perceived lack of quantity as well as quality of relationships.[21]

Mental health promotion. Actions to create living conditions and environments that support mental health and allow people to adapt and maintain healthy lifestyles.[22]

Mindfulness. "Paying attention in a particular way: on purpose, in the present moment, nonjudgmentally,"[23] or, "self-regulation of attention to the conscious awareness of one's immediate experiences while adopting an attitude of curiosity, openness, and acceptance."[24]

Mindfulness-Based Stress Reduction. An 8-week group intervention that meets once per week for 2.5 h and has one all-day session towards the sixth week. Each session has specific formal mindfulness exercises (e.g., body scan, walking meditation) and encourages informal mindfulness practices outside of session, by bringing mindfulness to daily activities (e.g., showering, eating). Beyond the three mechanisms outlined above (focused attention, decentering, and emotion regulation), specific mechanisms of MBSR also include mindfulness and self-compassion.[25]

Moderate mental health. In the flourishing through languishing continuum, individuals who are neither flourishing nor languishing are considered to have moderate mental health.[8] Keyes defined moderate mental health for teens ages 12 through 17 as an average score of 3 or 4 across items in the domains of emotional, psychological, and social wellbeing.[9]

Moving to Opportunity for Fair Housing Experiment. The MTO experiment randomized participants living in public housing or private assisted housing at baseline into experimental and control groups and provided a housing voucher for experimental group participants to move to neighborhoods with less than 10% of the population below the poverty line.[26] The study took place between 1994 and 1997, in five U.S. cities (Boston, MA; Baltimore, MD; Chicago, IL; Los Angeles, CA; New York, NY).

Positive Psychology. The study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions. It has four main categories of focus: positive emotions and their effects on psychological and physical functioning, positive individual traits and their protective role in different physical and psychological disorders, positive interpersonal relationships, and positive institutions.[27]

Positive Youth Development. PYD programs build skills, assets, and competencies; foster youth agency; build healthy relationships; strengthen the environment; and transform systems to prepare youth for successful adulthood.[28]

Preventive interventions. Preventive interventions are based on modifying risk exposure and strengthening the coping mechanisms of the individual. Effective interventions require identifying causal risk factors and can target both generic risk factors and disease-specific factors. Most preventive intervention will likely involve a combination of strategies for reducing exposure to risk factors, enhancing protective factors, and targeting putative mediating causal mechanisms such as cognitive schemas. Primary preventive interventions in mental health are those targeting risk factors and promoting mental health in individuals without a clinically diagnosable mental disorder.[29]

Psychological wellbeing. Psychological well-being comprises aspects of individuals' psychological functioning (e.g., autonomy and a sense of personal growth).[8] The four theoretical domains of psychological wellbeing measured for teens ages 12 through 17 in a U.S. nationally representative survey were environmental mastery, positive relations with others, personal growth, and autonomy.[8]

Resilience. Most definitions of resilience have the same underlying recognition of the presence of adaptation/coping in response to risk/adversity/challenges. In other words, resilience develops in response to challenges, not in their absence, and the person (or system) can become stronger than before.[30] Psychological resilience refers to a person's capacity to adapt to the challenges of life and maintain mental health despite exposure to adversity.[31]

School climate. School climate is broadly defined as the values, relationships, practices, and structures that contribute to students' experiences at school and encompasses members' feelings of physical and emotional safety and the quality of their interpersonal relationships.[32]

Self-efficacy. Self-efficacy is the belief in one's capability to organize and execute the courses of action required to produce given attainments. Self-efficacy is a key construct within several popular health psychology theories including social cognitive theory, protection motivation theory, transtheoretical model, health action process approach, and perceived behavioral control.[33]

Self-regulation. A psychological construct which encompasses a range of important competencies, including the capacity for controlling one's emotions, the ability to have positive interactions with others, the capacity for avoiding inappropriate or aggressive actions, and the ability to carry out self-directed learning. Cognitive processes contributing to SR are often referred to as executive functions, and they include the ability to direct or focus attention, shift perspective, and adapt flexibly to changes (cognitive flexibility); retain information (working memory); and inhibit automatic or impulsive responses to achieve a goal, such as problem-solving (impulse control).[34]

Social and Emotional Learning. Social and emotional competence is the ability to understand, manage, and express the social and emotional aspects of one's life in ways that enable the successful management of life in ways that enable the successful management of life tasks such as learning, forming relationships, solving everyday problems, and adapting to the complex demands of growth and development. It includes self-awareness, control of impulsivity, working cooperatively, and caring about oneself and others. Social and emotional learning is the process through which children and adults develop the skills, attitudes, and values necessary to acquire social and emotional competence.[35]

Social isolation. The state in which the individual or group expresses a need or desire for contact with others but is unable to make that contact.[36]

Social wellbeing. Social well-being indicates how well an individual functions in their social life as a member of a larger society (e.g., social integration and social contribution.[8] The four theoretical domains of social wellbeing measured for teens ages 12 through 17 in an early 2000s U.S. nationally representative survey were social contribution, social integration (sense of belongingness), social actualization (feeling that society is becoming a better place), social acceptance (feeling that people are basically good), and social coherence (feeling that the way our society works makes sense).[9]

Structural determinants. "All social and political mechanisms that generate … stratification and social class divisions in society and that define individual socioeconomic position within hierarchies of power, prestige and access to resources." The structural determinants cause and operate through intermediary determinants of health—housing, physical work environment, social support, stress, nutrition and physical activity—to shape health outcomes.[37]

Youth Participatory Action Research (YPAR). YPAR includes three key *principles*. First, YPAR is inquiry based; topics of investigation are grounded in youths' lived experiences and concerns. Second, it is participatory; youth are collaborators in the methodological and pedagogical process. Finally, it is transformative; the purpose of YPAR is to actively intervene in order to change knowledge and practices to improve the lives of youth and their communities. Consistent with these principles, Ozer and Douglas (2015) have identified key *processes* in YPAR. Youth and adults share power during an iterative process that includes developing an integrated research and action agenda; training in, and application of, research and advocacy methods; practicing and discussing strategic thinking about how to create social change; and building alliances with stakeholders.[38]

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Rapid Evidence Review Appendix 2: Methods

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Rapid Evidence Review Methods

Overview

The purpose of this Rapid Evidence Review (RER) is to identify interventions and strategies for enhancing the psychological, social, and emotional well-being of high-school-aged teens.[1] The project is supported by Well Being Trust, as a component of their development of an overarching framework and strategy for enhancing the psychological, social, emotional, and spiritual wellbeing of the U.S. population. Consistent with the AcademyHealth approach to conducting Rapid Evidence Reviews, we leverage existing systematic reviews of interventions, strategies, and policies, identified by searching for outcomes conceptually related to the definition of psychological, social, and emotional wellbeing, as defined initially by Keyes[2] and expanded on through ACT for Health's previous scoping reviews.[3,4]

In identifying systematic reviews, we followed PRISMA's definition of a systematic review as "a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review."[5]

To guide our work, we developed a Rapid Evidence Review Protocol specific to this project, which was reviewed in draft by 2 Key Expert Reviewers[6] and members of the project's National Expert Panel.[7]

Concepts

What is Teen Psychological, Social, and Emotional Wellbeing?

There is no single set of definitions of psychological, social, and emotional wellbeing applied to interventions for teens, but a brief history of recent work suggests an emerging convergence.

In the early 2000s, Keyes and colleagues constructed a measure of subjective (psychological, social, and emotional [PSEWB]) wellbeing for 12-18 year-olds based on measures of adult psychological, social, and emotional wellbeing, and using items from the Child Development Supplement—II (CDS-II) in a nationally representative survey (see items in Box 1).[2,8] Keyes and colleagues aimed in part to see if previously identified dimensions of adult subjective wellbeing applied to younger people.[9] Purpose in life and self-acceptance were not measured in the CDS-II because self-esteem, a closely related measure of self-acceptance, was already part of the CDS, and purpose in life did not seem to be a pertinent question for pre-high school youth, and they wanted to obtain measures on all youth between the ages of 12 and 18. Keyes used scores from the measure to assess teens on a scale from flourishing to languishing. "Flourishing" required an average score of 5 or 6 across the items. "Languishing" required an average score of 1 or 2 across the items. Moderate mental health required an average score of 3 or 4 across the items. The work by Keyes also contributed to an emerging movement to add rigorous measures of children's positive health and wellbeing to government reports.[10]

Similar approaches to conceptualizing teen flourishing include the characterization of outcomes of Positive Youth Development (PYD) as the 5 C's: Confidence, Character, Caring, Competence, and Contribution.[11] However, the framing of positive youth development and similar concepts like resilience is changing along the lines of a Relational Developmental Systems metatheory.[12,13] Further, continuing work on the PYD model is resulting in proposed additions to the 5 Cs, such as critical consciousness of socioeconomics,[14] and calls to consider the potential downsides of some 5 C components (e.g., "caring too much").[15] The federally sponsored National Survey of Children's Health also reports its own metrics of flourishing and languishing for 12-17 year-olds, as reported by parents rather than teens themselves. The 3 items in the measure are meant to capture "curiosity and discovery about learning; resilience; and self-regulation," by using the following 3 items (1) child shows interest and curiosity in learning new things, (2) child works to finish tasks he or she starts, and (3) child stays calm and in control when faced with a challenge. If the adolescent's parent or guardian answers "definitely true" to 0-1 flourishing items, the adolescent is classified as "languishing."[16]

A recently developed survey – Youth THRIVE™ –measures 5 groups of protective and promotive factors–youth resilience, social connections, knowledge of adolescent development, concrete support in times of need, and cognitive and social-emotional competence–using 66 adolescent self-report items.[17] The primary purpose of the survey is to provide baseline and progress data for youth-serving organizations (e.g., child welfare, juvenile justice), although the developers say it can be used with any teen population. The factors and subfactors include most of those used as positive outcomes in the systematic reviews included in this RER. Youth THRIVE™ does not measure some of the

Box 1. Items in Keyes' Measurement of Psychological, Social, and Emotional Wellbeing in 12-18-year olds: Child Development Supplement-II (CDS-II) Included in the Panel Survey of Income Dynamics, 2002-3

Emotional well-being

Three items that asked youth how often during the past month they had felt:

(1) happy
(2) interested in life
(3) satisfied

Psychological wellbeing

Four of the six theoretical dimensions of psychological well-being, and the survey items measuring them were:

1. Environmental mastery: "how often did you feel good at managing the responsibilities of your daily life"?
2. Positive relations with others: "how often did you feel that you have warm and trusting relationships with other kids?"
3. Personal growth: "how often did you feel that you have experiences that challenge you to grow or become a better person?", and
4. Autonomy: "how often did you feel confident to think or express your own ideas and opinions?"

Social wellbeing

Five dimensions of social well-being were measured in the CDS-II.

1. Social contribution: "How often did you feel that you had something important to contribute to society?"
2. Social integration: "how often did you feel that you belonged to a community like a social group, your school, or your neighborhood?"
3. Social actualization: "how often did you feel that our society is becoming a better place?"
4. Social acceptance: "how often did you feel that people are basically good?"
5. Social coherence: "how often did you feel that the way our society works made sense to you?"

outcomes in the RER, such as symptoms related to psychiatric disorders (depression, anxiety, internalizing symptoms, externalizing symptoms, stress), suicidal thoughts, gender ideology, and stigma related to mental illness.

Conceptually, this RER uses the Keyes conceptual framework of flourishing defined as high levels, and languishing as low levels, of psychological, social, and emotional wellbeing. However, the systematic reviews and large-scale studies use their own terminology for outcomes (and interventions), which we adhere to rather than try to force the labels into any particular framework.

Search Strategy

Figure 1 shows the Boolean search term strategy used for this review. Given the wide variation in database search capabilities, we modified searches as appropriate for the databases utilized in this review. Searches began by filtering for review method and publication or posting data (**Column 1**). Next, target populations (**Column 2**), using grouped keywords and the Boolean "OR" operator, were added, followed by grouped keywords for measured outcomes (**Column 3**). In order to obtain reviews of studies of interventions, strategies, or policies at various ecological levels, we used terms commonly employed in their discussion or implementation, terms from our ecological framework, terms related to specific settings, and the phrase "AND (universal)" (**Column 4**).

Figure 1. Search terms used for this Rapid Evidence Review

Column 1. Systematic Review; Publication/ Posting Dates	AND	Column 2. Population	AND	Column 3. Outcomes	AND	Column 4. Intervention Indicator
Systematic review		Adolescen*		Flourish*		(Interven* OR policy OR strategy* OR program OR training OR curricular OR initiative)
Scoping review		Youth		Languish*		(School OR education OR parent OR family OR nation* OR federal OR state OR community OR neighborhood OR employment OR workplace OR "social environment" OR "school climate")
Rapid review		Teen*		(Psychological OR emotional OR social OR mental) AND (wellbeing OR well-being)		Universal
Review		High school students		(Psychological OR (positive AND mental) OR social OR emotional) AND health		
Year (2014-2019)		Secondary school students		Positive youth development		
				(Stress OR anger OR fear OR hostility OR loneliness OR internalizing OR externalizing OR intolerance OR racism OR ((racial OR ethnic) AND (discrimination OR prejudice)) OR stigma OR bias OR (suicidal AND thoughts)		
				(Fulfilment OR "sense of meaning" OR purpose OR "sense of purpose" OR hope* OR "belief in the future" OR balance OR (life AND satisfaction) OR "quality of life")		
				(Resilien* OR grit)		
				(self-efficacy OR self-confidence OR self-perception OR identity OR self-image OR self-esteem)		
				(Pro-social or "social participation" OR "social competence" OR "social skills" OR "social well-being" OR empath* OR attachment OR connectedness OR engagement OR "positive relationships" OR forgiveness OR respect)		
				(Social AND (isolation OR avoidance))		
				(Violence OR bullying OR victimization)		
				("Emotional competence" OR "emotional skills" OR "emotion regulation" OR (positive AND affect) OR mindfulness)		

Figure 1. Search terms used for this Rapid Evidence Review (cont'd)

Column 1. Systematic Review; Publication/ Posting Dates	AND	Column 2. Population	AND	Column 3. Outcomes	AND	Column 4. Intervention Indicator
				("Moral competence" OR "Moral skills" OR "behavioral competence" OR "behavioral skills" OR ("non-cognitive" AND (competence OR skills))		
				(Coping OR help-seeking OR ((mental AND health) AND awareness))		
				(Identity AND (exploration OR commitment))		
				(Belonging OR autonomy OR independence OR functioning)		
				(Growth AND mindset)		
				((Collective AND efficacy) OR (collective AND well-being))		
				Friendship OR (neighbor* AND relation*)		
				((Social AND wellbeing) OR (social AND capital) OR (social AND inclusion) OR (community AND resilience))		

We searched for universal, population-based, interventions for both practical and scientific reasons. The practical considerations stem from our use of a "review of reviews" approach. Once they have identified their target population, review authors typically provide limited additional details about the characteristics of target populations in included studies. In addition, to our knowledge, no well-being or other deliberate intervention has been applied universally to the entire teen population of the world, so no study is population-based in its most comprehensive definition.

Scientifically, one can justify 13-18 year-olds as a distinct population, at least within high income countries.[18] Reasons include: (1) the seemingly universal nature of distinct neuro-developmental changes;[19,20] (2) the apparently universal exposure to common social environments or determinants of health, such as widespread public misunderstanding of the nature of adolescence;[21] (3) the common experience of intense academic and other pressures; (4) legal status of most 13-18 year-olds as minors, and so, limited in their capacity to act autonomously; and (5) the substantial percentages of teens experiencing psychological distress without identified modifiable risk factors that would allow a targeted approach to interventions.[22,23,24,25] In addition, population-based, universal interventions may provide more opportunities to trade reactive, deficit-oriented strategies for those that are proactive, empowering, and strengths-based,[26] and may be able to provide a broad-based "foundation for well-being and effective functioning."[27] This RER did not search for reviews or studies of interventions, policies, or strategies focused on distinct subpopulations of adolescents at risk for languishing, and especially not teen subpopulations with diagnosed mental disorders, even though they too may benefit from universal well-being interventions.[28] We do include in our evidence tables additional characteristics of teens if they are provided by review authors. We hope that future work can analyze and build on our broad-based evidence base to enable targeting within universalism.[29]

Also due to practical and theoretical considerations (e.g., size of search fields in databases), we did not include a list of interventions, strategies, or policies as search terms (e.g., mindfulness interventions) in our initial searches. However, when we learned of new or newly popular types of interventions, strategies, or policies seemingly related to enhancing PSEWB ,we conducted rapid searches of key databases

(e.g., PubMed, Google Scholar, What Works Wellbeing Centre) to find systematic reviews that focused on specific interventions and teen psychological, social, or emotional wellbeing outcomes. Examples of such topics include: school climate; loneliness-focused interventions; social media; digital mental health; racism; racial- or ethnic-discrimination interventions; nature (blue or green space). However, for the most part, our RER search can be considered an outcomes-based search strategy.

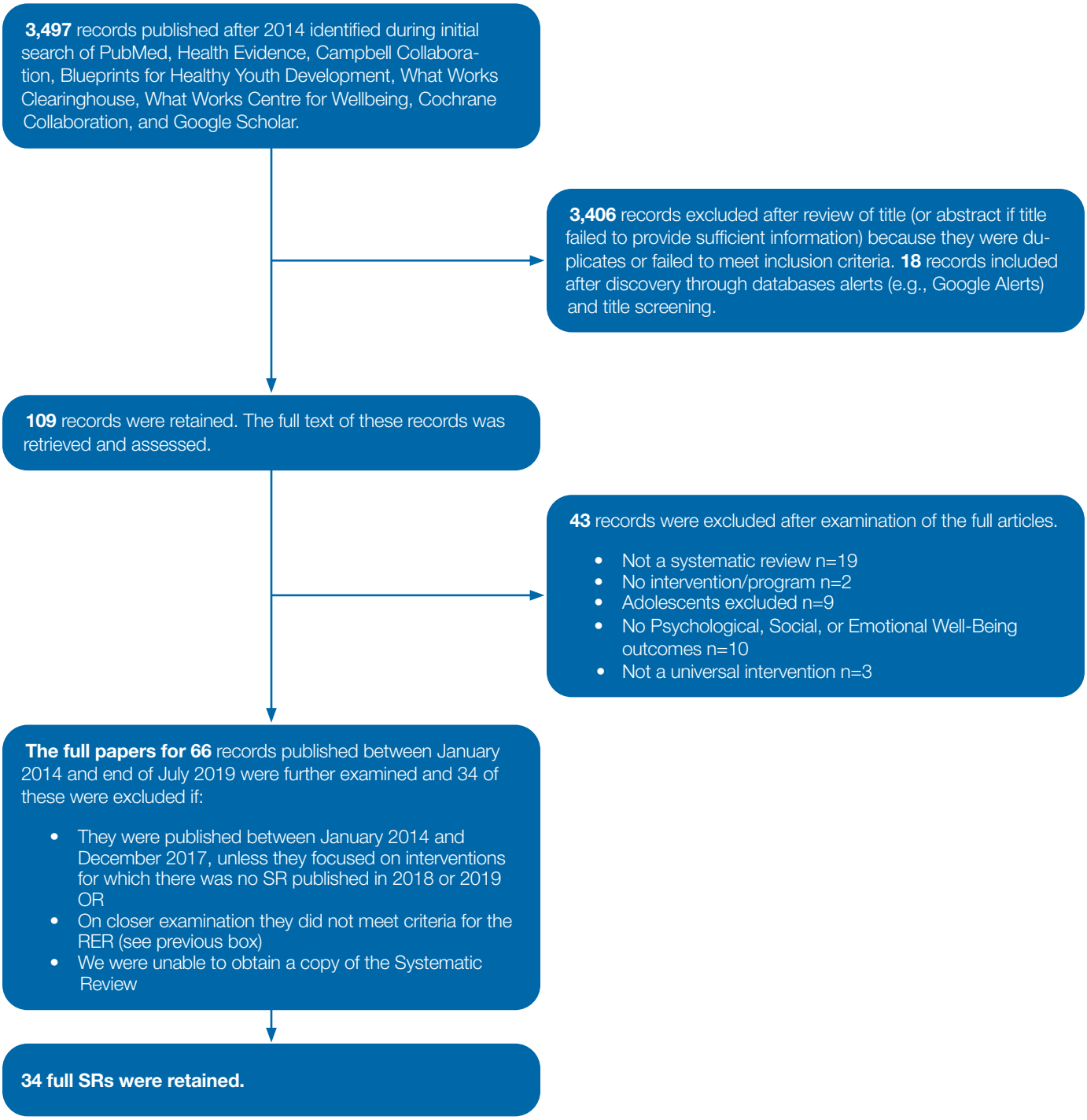
Inclusion/Exclusion Process and Reliability Checks

Figure 2 details the procedure, derived from PRISMA Statement,[5] through which articles found during our search were selected for inclusion in this rapid review.

The task of performing initial searches was split by database among three team members, who then screened for relevant titles. After initial screening for titles, another team member would rescreen the same search results and the two team members then resolved any discrepancies.

After developing a shortlist of agreed-upon titles, full-paper assessment was conducted by one team member and any recommendations for inclusion into, or exclusion from, the final RER report were checked by a second team member. Differences were resolved by group discussion. Rationales for exclusion included one or more of the following; failure to assess psychological, social, and emotional wellbeing (PSEWB) outcomes; failure to include any high-school-aged teen (13-18 years of age) samples; lack of PSEWB intervention or program; lack of a universal intervention; and failure to qualify as a systematic review. When assessing whether a review was teen-focused, if a study included participants older or younger than our desired demographic we considered that study to be teen-focused if either of the following two conditions were met: 1) more than 50% of the sample population fell within our desired age range, or, 2) the mean age of the sample population was within our desired age range. This careful evaluation of teen-focused studies occasionally led us to exclude an entire review because of a lack of PSEWB findings for our focus age group.

Figure 2. Rapid Evidence Review article selection process



Subsequently, due to the retention of such a large number (66) of SRs, we decided to exclude any systematic reviews published prior to January 2018, unless they covered a topic for which we had not identified a SR published in 2018 and 2019. For example, when we found that no reviews identified through our searches covered the effects of parenting interventions for parents of teens, we added the systematic review by Yap et al. published by 2016 that we had identified in the previous ACT for Health scoping reviews.

Further, when we found that no reviews identified through our searches covered the effects of income supplementation, we added studies with findings for teen PSEWB from the large randomized trials known as Moving to Opportunity and the Great Smoky Mountains experiment.

Our focus is on interventions delivered to teens when they are high-school-aged. For example, we did not include studies such as the large-scale community-level-intervention "Communities That Care" (CTC) study. The CTC intervention occurred while the teens were in grades 5 through 8, and appears to have measured PSEWB outcomes only at the end of grade 8.[30] Substance use and delinquency were the main outcomes of interest for CTC.

Reviews that were excluded from the final RER report at any stage of assessment, along with accompanying rationale, are listed in **Appendix 6**.

Analysis: Evidence Tables

Retained full review papers were then synthesized in tabular format. These Evidence Tables can be found in **Appendix 5** and note the following components of a review:

1. Focus of the Review
   a. All age/developmental groups included in the review.
   b. Age/developmental groups included that are relevant to high-school-aged teens (ages 13-18).
   c. Intervention type, name, and definition – overall.
   d. Intervention type, name, and definition – examined for 13-18-year-olds or equivalent (specified by study, and included in a "Teen Table" at the end of the Evidence Table, if information was available).[31]
   e. Outcomes examined overall (including all, but highlighting PSEWB outcomes).
   f. Outcomes examined for 13-18-year-olds or equivalent (and included in the Teen Table)
   g. Outcomes examined regarding social/built environments and/or people surrounding 13-18-year-olds (specified by study if necessary and for whom/what it is measured).
   h. Settings for the intervention/program, Country(ies)/State(s)/Region(s)/Locality(ies) for the intervention/program, and ecological level of the intervention/program (e.g., national, community/neighborhood, school, family, work, recreation, OST).

2. Systematic Review Methods
   a. Date range for the review.
   b. Databases searched for the review.
   c. Review inclusion criteria (focusing on study methodology).
   d. Review exclusion criteria (focusing on study methodology).
   e. Guidance used to structure the review (e.g., PRISMA, GRADE).

3. Relevant Findings
   a. Number of studies included in the review
   b. High level findings (e.g., for all ages/developmental groups, especially if data on teens specifically was not included).
   c. Adolescent-specific findings (related to 13-18-year-olds or similar).

4. Systematic Review Limitations
   a. Limitations noted by the review author.
   b. Limitations noted by AcademyHealth (if any).

If a systematic review did not report findings separately for our targeted age group, but did provide sufficiently detailed information about included studies by age or similar relevant characteristic (e.g., study took place in high school), we added an additional table at the end of our evidence tables, noting the teen studies and their findings.

Endnotes

1. Approximately 13- through 18-years-old.
2. Keyes CLM. Mental health in adolescence: Is America's youth flourishing? American Journal of Orthopsychiatry [Internet]. 2006 July [cited 2019 June 24]; 76(3):395-402. https://www.ncbi.nlm.nih.gov/pubmed/16981819
3. Dougherty D and Wittenberg RL. (2017, June). Promoting adolescent social and emotional well-being: Can a culture of health approach help? Poster presented at the AcademyHealth Annual Research Meeting, Child Health Services Research Interest Group pre-conference. New Orleans, LA.
4. ACT for Health. (2018, June). ACT for Health Scoping Review. (Unpublished evidence tables for 22 reviews of non-school-based interventions to promote high-school-aged psychological, social, and emotional well-being).
5. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med [Internet]. 2009 [cited 2019 Aug 19]; 6(7):e1000097. Available from: https://doi.org/10.1371/journal.pmed.1000097
6. Eric Fein, MD, UCLadA; and Anthony James, PhD, Miami University of Ohio.
7. NEP members are: Johanna Bergan, Youth MOVE National; Christina D. Bethell, PhD, Professor, Bloomberg School of Public Health; Director, Child and Adolescent Health Measurement Initiative (CAHMI), Johns Hopkins University; Anne Collier, M.A., Executive Director of the Net Safety Collaborative; Angela Diaz, MD., Director of the Adolescent Health Center, Icahn School of Medicine, Mount Sinai; Nadine Gracia, MD, MSCE., Executive Vice President and Chief Operating Officer of Trust for America's Health; Vicki Harrison, MSW., Program Director of the Center for Youth Mental Health and Wellbeing, Stanford University; Corey Keyes, PhD., Founder of Simply Flourishing, Emory University; Michelle Kim Leff, MD, MBA, CAPT, USPHS, NIDA Technology Development Coordinator, IRP Chief of Staff, National Institute of Drug Abuse, National Institute of Health, Baltimore, MD; Matt Soeth, M.E.d., Founder of #ICANHELP, Teacher College of San Joaquin; Shawn Sprecker, Strategy Consultant and Data Privacy Expert, #ICANHELP; Qi Wang, PhD, Director of the Culture and Social Cognition Lab, Cornell University.
8. Keyes CLM. 2005, January. The subjective well-being of America's Youth: Toward a Comprehensive Assessment. *Adolescent & Family Health* 4(1):3-11.
9. The items were adapted from the Midlife in the United States (MIUS) study of adults. The items were administered for the first time to youth ages 12-18 in the CDS-II of the Panel Study of Income Dynamics. Respondents were asked how often in the past month they had the specified feeling.
10. Moore KA and Lippman L. 2005. Letter from the Editor. Adolescent & Family Health 4(1): 1.
11. https://fyi.extension.wisc.edu/wi4hvolunteers/files/2017/09/1-5-Cs-Hand-out-Lerner-2007.pdf
12. Lerner RM, Brindis CD, Batanova M, and Blum RW. 2018. Adolescent health development: A relational developmental systems perspective. In N. Halfon et al. (eds.), *Handbook of Life Course Health Development*. https://link.springer.com/content/pdf/10.1007%2F978-3-319-47143-3.pdf
13. RDS is characterized by a process-relational paradigm that focuses on process (systematic changes in the developmental system), becoming (moving from potential to actuality), holism (the meanings of entities and events depend on context), relational analysis (assessment of the mutually influential relations within the developmental system), and the use of multiple perspectives and explanatory forms. The developing organism is seen as: inherently active, self-creating, self-organizing, self-regulating, nonlinear/complex, and adaptive. The nature of natural developmental changes during adolescence makes teens more likely to have and be aware of these characteristics.
14. Tyler CP, Geldhof GJ, Black KL, Bowers EP. Critical Reflection and Positive Youth Development among White and Black Adolescents: Is Understanding Inequality Connected to Thriving? Journal of Youth and Adolescence [Internet]. 2019 Aug 4 [cited 2019 Sep 27]: 1-15. Available from: https://link.springer.com/article/10.1007/s10964-019-01092-1
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31. If supporting information was available in the review, or through the review's supplementary materials, we created a supplemental table of studies focused on adolescents, high-schools, or secondary schools following the aforementioned criteria for teen-focused studies. These tables were added at the end of the Evidence Table for any review for which it was necessary to understand the impacts of interventions on high-school-based teens specifically and for which the information was available in the publication under review. These "Teen Tables" listed the review publication's first author; the teen ages in the group or similar; the specific intervention assessed; study findings; and, as relevant, any notes relevant to understanding the study findings.

Moving Policy Upstream to Advance Adolescent Flourishing

Rapid Evidence Review Appendix 3: Narrative Summary of Findings

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With support from Well Being Trust

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Narrative Summary of Findings

Findings from the Rapid Evidence Review

The Rapid Evidence Review found that reviews related to teen wellbeing include studies at the national, community, including school, interpersonal, and individual-teen levels, but not the global or cultural level (**Figure 1** in Summary of Findings).

Few systematic reviews address levels other than the individual teen level (in which efforts are made directly with teens themselves). A few studies at the national/community, school, interpersonal, and individual level also measured effects at the community and school levels (community wellbeing), findings that can suggest potential moderators of effects on teen flourishing.

Effects on community well being of national, community, school, and interpersonal level strategies

Different approaches have been tried, or occurred naturally, at the combined national-community level, community and school levels, interpersonal, and multiple levels of our socio-ecological framework. The combined national/community level intervention "Moving to Opportunity" (MTO) housing assistance experiment in 5 U.S. cities,[1] resulted in improved community environments (e.g., better food choices; decreased neighborhood-level percent poverty; less intense development; fewer gangs; more exposure to nature), but diverse impacts on families (e.g., more housing discrimination in the new neighborhoods). Efforts in the U.K. to improve community environments had multiple positive effects on neighborhoods (e.g., more green and blue space; social cohesion, neighborhood pride) although not all effects were positive.

School-level teen wellbeing strategies attempt to change high school environments so that they function better for all stakeholders. For example, a review of mindfulness training for elementary and high school teachers improved educators' psychological distress and psychological wellbeing, but not classroom climate or teaching practices. An intervention with teen participants also measured effects on community wellbeing. A review of "youth inquiry" approaches (e.g., youth participation in research) found changes at the exosystem (school, city, state level policy adoption), meso-system (research benefits); and microsystem levels (practitioner growth; peer group norms).

Effects on teen flourishing indicators of national, community, school, and interpersonal level strategies

National/community level intervention effects on teens. We found relatively few large studies or reviews have tested the teen wellbeing effects of efforts to change the environments within which teens live (national/community, community, community/school, interpersonal). Most of the interventions at these levels had a broader focus than solely enhancing wellbeing of teen participants. Further, the MTO experiment's teen results appear to depend on a number of factors, such as the age at which adolescents move, their gender, and characteristics of the new neighborhood and city. In the MTO experiment, psychological distress was reduced for girls in 4 out of 5 cities, and did not change among boys in any city.

Community level intervention effects on teens. A natural experiment that occurred halfway through the Great Smoky Mountains child mental health epidemiological study had mixed effects on teen wellbeing. A new American Indian-run casino began sharing its profits with tribal families, increasing their monthly incomes. The Great Smoky Mountains income supplement reduced oppositional defiant disorder and conduct disorder symptoms but not anxiety and depression symptoms.

Observers of both studies suggest that more careful attention to teen developmental factors in connection with change processes during the interventions could result in more positive results. For example, researchers suggest that moving teenage boys after age 13 may be too disruptive and teen boys may be more likely than girls to return to their old neighborhoods rather than seek new friends.

School- level intervention effects on teens. Many school districts are being pressured to change school start times for teens, based on new research showing that teen sleep cycles are natural and not easily modifiable, but have not been factored into decisions about school start times. A few studies, mostly small and in single schools, have been included in reviews. Earlier school start times in these studies found mixed but largely positive effects, improving school-night sleep duration and some mental health measures. A mindfulness based whole-school mental health promotion intervention resulted in moderate reductions in low-grade depressive symptoms.

Interpersonal-level intervention effects on teens. Interpersonal interventions involve efforts to change family or peer behavior and relationships. The one existing review relevant to helping parents of teens found only 3 studies, with a mix of positive (reduced depressive symptoms) and no impact.

Efforts to change teens' attitudes, feelings, and behavior by intervening with the teens themselves

Interventions that aim to change teens' attitudes, feelings, and behavior by intervening with the teens themselves are by far the most common approach to enhancing teen flourishing. Their findings are summarized by strategy type or strategy component in **Table 1**. For a variety of reasons, the summaries in Table 1 should not be used as a definitive guide to which individual-teen-level evidence-based strategies should proceed to widespread implementation.[2] For example, the same strategies may be described using a variety of labels by different reviewers and over time. Some of the reported findings rely on one to a few studies identified as teen-relevant within broader reviews, while others come from composite effect sizes from multiple studies.

The broadest reviews were of universal resilience-focused interventions, universal school-based mental health promotion strategies, and universal school-based mental health interventions in the context of Multi-tiered Systems of Supports (MTSS). The focus on resilience-based interventions is from a 2017 review and suggests little reason to have confidence in the effectiveness of this intervention type, except for internalizing symptoms. Recent observers have noted that attempts to make individual people more resilient can be wrongheaded, when the ecological focus should be on changing potentially harmful environments. Universal school-based mental health promotion strategies reviewed found positive outcomes for anger, sigma, and suicidal ideation, and the review of the school-based interventions in the MTSS context found mixed effects on depressive symptoms.

Skeen et al. recently estimated the effectiveness of specific components of universal adolescent mental health programs on 4 broad outcome groupings, including 2 types that we include in this RER (positive mental health promotion outcomes; anxiety and depression symptoms). Skeen reports that positive mental health promotion outcomes have been positively affected by specific components (alcohol and drug education, emotional regulation, interpersonal skills, and skills to resist peer pressure), although the effect sizes varied considerably, and some components worked better for some outcomes than others. Skeen et al. also questioned why the alcohol and drug education strategies worked for positive mental health. Some of the same components that were effective for positive mental health were also effective for anxiety and depression symptoms (emotional regulation and interpersonal skills), but others (conflict resolution, goal setting, problem-solving) were effective for anxiety and depression symptom reduction but not for positive mental health promotion outcomes. Skeen et al. differentiated between face-to-face and digital or digital-and-combined mechanisms for delivery.

A few interventions can be considered "digital." They varied in effectiveness. BiteBack (an online positive mental health intervention) was effective for improving total symptom scores, but not life satisfaction. E-health4U improved mental health; mass media digital platforms reduced stigma among teens, but mobile apps and phone-based multimedia messages were not able to reduce depressive symptoms.

Multiple reviews, with multiple outcomes, measured the strategies of exercise, yoga, mindfulness, mentoring (separately and under the umbrella of social and emotional skills development), and social and emotional skills development, broadly defined. Both positive and no impacts were found for each of these types.

Several less-studied strategies showed at least one positive impact on psychological, social, and emotional wellbeing. These include creative activities, community sports participation, suicide prevention, and youth-led community development programs.

Only single reviews covered interventions to improve young males' wellbeing, video interventions, and interventions to increase interactions with nature. All had mixed effects.

Findings for subpopulations of teens

As noted previously, a limitation of the review of reviews approach is the paucity of consistent and useful information about teen and other subpopulations. However, some reviews and studies focused on subpopulations. For example, Catalano focused on low- and middle-income countries, and Gwyther focused on interventions and outcomes for males. Some reviews provided information about the nature of the studies they included on gender, race, socioeconomic status, urbanicity/rurality, geography, school type, school location, and achievement levels.[3]

Limitations and Implications for the Future

This RER and the reviews and studies included have limitations. As explained in Appendix 2 (Methods), the RER limited its searches to universal, population-based, interventions and did not look for targeted interventions to advance flourishing for teens at potentially higher risk of languishing.[4] In addition, the findings presented in summary tables should be interpreted carefully and not taken as indicators of relative effectiveness. The tables include a mix of high-level findings from systematic reviews, often covering relatively broad age ranges; and findings from original research studies included in broader reviews but focused on teens and/or psychological, social, and emotional wellbeing outcomes.

Across reviews, terminology for adolescent and other populations, interventions, and outcomes is used inconsistently; we followed the way reviewers and study authors labeled populations, interventions, and outcomes.

Since our search strategy was primarily outcome-based, it is possible we may have missed some reviews that gave more weight to intervention keywords.

Our analytic focus on reviews published in 2018 and 2019, while reasonable because of recent conceptual advances and methodological improvements in both study and review processes, may have missed older reviews with relevant outcomes or interventions.

The nature of the reviews precluded conduct of a meta-analysis of findings for teens.

An important limitation beyond our control is the nature of the evidence. Almost every systematic review notes methodological challenges in their included studies (see Evidence Tables in Appendix 5). Many of the studies included in reviews suffer from threats to both internal and external validity, because of small sample sizes and single-site implementation. The use of home-grown metrics rather than validated instruments is an issue noted in several reviews. Funding for psychological and social science interventions, and for research focused on teens and/or wellbeing outcomes, is traditionally very limited, relative to medical research on adults. Those wishing to evaluate such interventions may not have sufficient resources to conduct rigorous research. Further, there may be community resistance to spending resources on evaluation versus expanding programming, and resistance to randomization or other strong experimental and quasi-experimental designs.

A possible limitation from the U.S. perspective may be the fact that most of the systematic reviews are from non-U.S. entities and authors. Twelve reviews were led by U.S.-based authors. Nine reviews were from the U.K. Other countries included: Australia (3), Canada (2), Czech Republic (2), Spain (2), Ireland (1), Malaysia (1), South Africa (1), The Netherlands (1).

Implications for the Future

Intervention types at socio-environmental levels beyond the individual teen level received little rigorous study or systematic review attention for their impacts on teens. These include global and cultural changes, national and/or community-level policy changes (e.g., family housing assistance, family income supplementation), community infrastructure improvements, whole school and whole school/whole community/whole child approaches (e.g., social and emotional learning as a coherent multi-level strategy, school climate), and expansion of access to nature (i.e., blue and green space).

In addition, newer cross-cutting approaches to teen flourishing interventions, and newer sources of teen stress, are missing from the scientific literature, due in part perhaps to the lag times between issue identification, innovation development or adaptation of existing promising strategies, scientific evaluation of interventions, and availability of studies for systematic review. For example, Relational Developmental Systems Theory is a relatively new way to conceptualize approaches to adolescent development.[5,6] Yeager and colleagues noted a more pervasive failure of interventions aimed at teens, and recommended that strategy designers more carefully think through how strategies can appeal to teens and lead to a more robust evidence base.[7]

Contemporary sources of teen stress without reviews include systemic racism;[8] aspects of social media;[9] climate change;[10] peers' mental health;[10,11] mass shootings;[12] academic and economic pressure.[13] These have been topics of discussion but have not been specifically addressed with adapted or new interventions. On the positive side, recent examples of teen-generated civic engagement may be worth further study to understand whether they enhance flourishing.[14]

Recent methodological guidance may help future study leads and systematic reviewers provide a more rigorous evidence base. For example, Reavley and Sawyer's recent publication for UNICEF focuses on remedies for a variety of flaws within adolescent-focused research, including how ages/developmental stages are grouped.[15]

Subsequent analyses could go beyond program labels and examine effectiveness using program components, theories of change, and the extent to which interventions that include teens are tailored to adolescence using the most recent science. Skeen and colleagues recently published an evidence review of teen-focused interventions by component, for use by the WHO and the United Nations for their upcoming initiative, Helping Adolescents Thrive.[16] Yeager recently noted that social and emotional learning interventions for teens often fail because many were "simply aged-up versions of childhood programs—for instance, they communicate the same message, but now the character doing the talking has a skateboard and a chain wallet. Such programs often fail to capture adolescents' attention, both in what they say and how they say it."[17]

Conclusion

A variety of interventions, strategies, and policies, at different levels of social and environmental influence, can make positive changes toward enhancing teens' psychological, social, and emotional wellbeing. If well implemented at a population level, and possibly combined to address multiple levels, strategies could help to get teens, their communities, schools, and families, on a path toward positive mental health and flourishing and away from a current path to increasing "languishing." However, there is enough uncertainty in the data to warrant additional and more rigorous evaluation of any program or policy intervention. Future evaluations should carefully measure the impacts of universal programs and strategies on teens at varying risk of psychological distress, in preparation for potential future targeting.

Table 1. Summary of teen-level findings from the rapid evidence review, by strategy. Bolded entries indicate the findings are from methodologically more robust reviews

	Socio-Environmental Level and Strategy (Review OR Study)[18]	Outcomes with Positive Impact (Strategy Subtype)	Outcomes with No Effect, Inconclusive, or Negative Effect (Strategy Subtype)
National/community-level interventions			
1	Housing assistance (Nguyen, 2016)	Psychological distress (girls only)	Psychological distress (Chicago participants: null findings; boys in other locations: detrimental effects)
Community-level interventions			
2	Income supplementation (Costello, 2003)	Oppositional defiant disorder and conduct disorder symptoms	Depression and anxiety symptoms
School-level interventions			
3	Later school start times (Berger, 2018; Marx, 2017)	Depressive symptoms; sleep duration; other mental health (prosocial, emotional symptoms, peer relationships, total difficulties); composite mental health	Mental health (inconclusive due to study design flaws); conduct problems; feeling accepted by other students; feeling accepted by adults
4	Whole school approach focused on mental health promotion (Enns, 2016)	Social and emotional competence[19,20]	
Interpersonal-level interventions			
5	Parenting interventions to prevent teen internalizing symptoms (Yap, 2018)	Depressive symptoms or diagnosis	Internalizing symptoms
Multi-level interventions			
6	"MindMatters" (multi-tier involving school personnel and students) (O'Reilly, 2018)	Emotional and/or social competence	
7	"Up" (school-based mental health promotion) (O'Reilly, 2018)	Emotional and/or social competence	
8	Violence reduction and gender equality-focused intervention with training for school counselors and parent involvement (Catalano, 2019)	Favorable attitudes toward domestic violence (declined)	

Socio-Environmental Level and Strategy (Review OR Study)[18]		Outcomes with Positive Impact (Strategy Subtype)	Outcomes with No Effect, Inconclusive, or Negative Effect (Strategy Subtype)
Individual teen-level interventions			
Broad groupings of strategies			
9	Universal resilience-focused interventions (various types) (Dray, 2017)	Internalizing symptoms (cognitive behavioral therapy-based)	Anxiety/anxiety and stress; depressive symptoms; externalizing problems/behaviors; psychological distress
10	Universal school-based mental health promotion (O'Connor, 2018)	Anger/anger control (life-skills training); stigma (anti-stigma program); stress (stress management program); suicidal ideation (Suicide prevention and depression awareness program)	
11	Universal 'Tier 1" school-based mental health interventions in the context of multi-tiered systems of support (MTSS) (Arora, 2019)	Depressive symptoms	Depressive symptoms
Specific programs or program components			
12	Alcohol and drug education (Skeen, 2019)	**Positive mental health promotion (face to face interventions only)**	
13	Anxiety reduction interventions (Feiss, 2019)	Anxiety/stress	
14	BiteBack and BiteBack School (online positive mental health) (Banos, 2017)	Total symptom score	Life satisfaction
15	Body image interventions (Soulakova, 2019)		Body image
16	Cognitive behavioral therapy-based (Soulakova, 2019)		**Anxiety/stress**
17	Community sports participation (Barry, 2018)	Community engagement[21]	
18	Conflict resolution components of universal adolescent mental health preventive interventions (Skeen, 2019)	**Anxiety and depression symptoms (face to face components only)**	
19	E-health4U (Banos, 2017)	Mental health	
20	Emotional regulation components of universal mental health prevention strategies (Skeen, 2019)	**Anxiety and depression symptoms; positive mental health promotion**	

	Socio-Environmental Level and Strategy (Review OR Study)[18]	Outcomes with Positive Impact (Strategy Subtype)	Outcomes with No Effect, Inconclusive, or Negative Effect (Strategy Subtype)
21	Exercise[22] (includes Tai Chi, which could also be considered meditation) (Mansfield, 2018; Pandey, 2018; Rodriguez-Ayllon, 2019)	Anxiety/stress (to 50-80% of heart rate; tai chi [versus gymnastics]); depressive symptoms; imbalance (emotional, psychological); psychological distress (aerobics and hip-hop groups had lower psychological distress than body conditioning and ice-skating groups); feelings (aerobics only); positive wellbeing (volleyball: effects varied based on extent to which the sport met students' psychological needs; aerobics and hip-hop rated positive wellbeing higher than body conditioning and ice-skating groups); self-esteem (aerobic exercise: girls only; greater improvements for resistance training than for aerobics); process self-regulation (personal and social responsibility model exercise interventions)	Stress (tai chi [cen-style]); body image; happiness (tai chi [versus gymnastics]); mental health/mental health status (CrossFit); psychological wellbeing (high-intensity interval training); self-esteem (active video game program)
22	Goal-setting components of universal adolescent mental health prevention interventions (Skeen, 2019)	**Anxiety and depression symptoms (face to face only)**	
23	Interpersonal skills components of universal mental health preventive programs (Skeen, 2019)	**Anxiety and depression symptoms; positive mental health promotion**	
24	Life skills education (Nasheeda, 2019)	Emotional adjustment; empathy; self-esteem	Social adjustment
25	Life skills for mental health (Catalano, 2019)	Self-esteem	
26	Mental health awareness (Salerno, 2016)	Stigma (1 out of 3 studies found improvements in attitudes)	Stigma (2 out of 3 studies found no improvement in attitudes); help-seeking (grades 5-12 combined); **mental health literacy (knowledge)**
27	Mentoring[23] (also see row 38 for positive youth development interventions) (Barry, 2018; Raposa, 2019)	Emotional difficulties and behaviors; multiple outcomes (school engagement, social skills, perceived social support, relationship quality)[24]	
28	Mindulness based interventions (Dunning, 2019; Skeen, 2019)	**Anxiety/stress;[25] depressive symptoms;[25] anxiety and depressive symptoms (face to face only);** stress; **mindfulness;[25]** resilience	**Negative behavior;[25] attention; [25] executive functions; [25] social behavior[25]**
29	Mobile app self-report on mood, stress, daily activities, and coping strategies (Punukullo, 2019)		Depressive symptoms[26]

Socio-Environmental Level and Strategy (Review OR Study)[18]		Outcomes with Positive Impact (Strategy Subtype)	Outcomes with No Effect, Inconclusive, or Negative Effect (Strategy Subtype)
30	Mobile phone-based multimedia messages (cognitive behavioral therapy-based texts) (Punukullo, 2019)		Depressive symptoms
31	Nature interactions (Tillman, 2018)	**Stress;[27] emotional wellbeing;[27] mental health/mental health status;** resilience[28]	**Emotional wellbeing;[27] mental health/mental health status;** resilience;[29] self-esteem[30]
32	Penn Resiliency Program - Finnish derivative (Bastounis, 2016)	Anxiety and depressive symptoms	Depressive symptoms; explanatory style; anxiety (control group did better)
33	Preparation for adulthood strategies (Burrus, 2018)	Healthy relationships; parent-child communication; adolescent development	
34	Problem-solving components of universal adolescent mental health prevention interventions (Skeen, 2019)	**Anxiety and depression symptoms** (digital and combined only)	
35	Programs to develop young men's wellbeing (Gwyther, 2019)	Depressive symptoms; negative affect; cognitive autonomy; emotional intelligence (multiple studies); help-seeking; interest in diversity of contact; mental health/mental health status; optimism; psychological wellbeing (gender sensitive programs); quality of life (enjoyment and satisfaction); reshaped perceptions about being a man; self-efficacy (male only programs and mixed gender programs); self-esteem; self-reflection	
36	Self-regulation/Emotional regulation techniques (Pandey, 2018; Van Genugtsen, 2016)	Connectedness Student (success skills program); self-esteem	Externalizing problems/behaviors; internalizing symptoms
37	Skills to resist peer pressure as a component of universal adolescent mental health prevention programs (Skeen, 2019)	**Positive mental health (aggregate)**	
38	Social and emotional skills development (multiple intervention types) (Barry, 2018; Taylor, 2017)	Communication and facilitation skills (through mentoring); life satisfaction/ life is worthwhile (multi-component social action interventions were the delivery mechanism for social-emotional skills); coping skills; positive youth development outcomes;[31] relationship skills	Negative affect (through mentoring); motivation to change; positive outlook
39	Stress reduction interventions (Feiss, 2019)		Stress: targeted interventions found to be better than universal

Socio-Environmental Level and Strategy (Review OR Study)[18]		Outcomes with Positive Impact (Strategy Subtype)	Outcomes with No Effect, Inconclusive, or Negative Effect (Strategy Subtype)
40	Suicide prevention (O'Connor, 2018)	Suicide knowledge; suicidal ideation; suicide prevention; help-seeking behavior and ability to identify support	Attitudes and behaviors
41	The Council for Boys and Young Men (UK)[32] (Gwyther, 2019)	Self-efficacy (school and future)	Identity distress; masculine ideology
42	Video interventions (Janouskova, 2017)	Stigma; help-seeking	Stigma; help-seeking
43	Yoga (Pandey, 2018)	Tension-anxiety; total mood disturbance; body image	Self-regulation (mindful yoga)
44	Youth-led community development program (Pennington, 2018)		Self-esteem

Outcomes in **bold** come from relatively rigorous reviews or studies.

Endnotes

1. In the late 1990s, MTO randomly supplied Federal housing assistance vouchers to volunteer families to new, higher-rent neighborhoods; some of the families had teenaged children, and the impact of the moves on teens' selected mental health measures was included in the extensive data collection effort of the initiative.
2. All outcomes come from systematic reviews. However, some outcomes are based on reviewers' syntheses, sometimes for all populations included in the review, and sometimes for teens included in our focus population of 13-18-year-olds, or high-school-aged teens. Some other outcomes come from just one or a few studies included in the review and focused on high-school-aged teen group findings for psychological, social, and emotional wellbeing outcomes, and not other outcomes that may have been reported in the review. Additional details can be found in Appendix 6 (Evidence Tables).
3. See, for example, evidence tables for Kennedy, Mansfield, Marx, Nasheeda, Pandey, Raposa, Salerno, and Taylor (Appendix 5).
4. See Appendix 2.
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14. Examples include Black Lives Matter, climate activism, March for Our Lives, and the organization Youth MOVE National.
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18. Full citations can be found in Appendix 5, Evidence Tables.
19. Positive outcomes compared to whole-school approach focused on preventing mental illness.
20. Ages 6-18 combined.
21. Characterized as social and emotional by Barry, 2018.
22. Note that different forms of exercise have different effects, according to reviews.
23. Mentoring programs varied. For example, the program with positive effect on emotional difficulties and behaviors was residential plus 9 months of mentoring, categorized as social and emotional skills development.
24. Note that mentoring with these outcomes was intergenerational and one-on-one.
25. Most study participants were older than 12, but the ages ranged from 4.7 to 17.4.
26. Reviewers attributed improvement in symptoms to participation in the research study rather than increased emotional self-awareness as a result of the mobile app.
27. Findings not available by age. Children and adolescent (18 and younger) interventions and outcomes combined.
28. 3 out of 5 interventions showed positive effects. Children and teens combined.
29. 2 out of 5 interventions showed positive effects. Children and teens combined.
30. 10 of 13 findings were not statistically significant.
31. Combined effect size reported. Outcomes not specific to adolescents, but demographics, including child age group, were not associated with the combined effect size.
32. The Council intervention aimed to encourage solidarity amongst young men, question maladaptive stereotypes, and recognize strengths and collective responsibilities.

Moving Policy Upstream to Advance Adolescent Flourishing

Rapid Evidence Review Appendix 4: Findings by Outcome

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With support from Well Being Trust

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Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
National/Community-Level Interventions				
National/Community-Level Outcomes				
Health promoting environments (in new, higher-rent, community compared to old community)[1]	Moving to Opportunity (MTO)[2]	Antonakas, 2019[3]	Families	Higher food prices
	Moving to Opportunity[2]			Less intense development
	Moving to Opportunity[2]			More open space
Neighborhood conditions	Moving to Opportunity[2]	Nguyen, 2017[2]	Families	Low-Poverty and Section 8 groups experienced substantial improvements in neighborhood conditions across diverse measures, including: ▪ economic conditions, ▪ social systems (e.g., collective efficacy), ▪ physical features of the environment (e.g., tree cover) and ▪ health outcomes. Significantly fewer youths in the low- poverty group reported the existence of gangs (B= -0.13 SD) in their neighborhood or school, or hearing gunshots (B= -0.1 The low- poverty voucher group moreover achieved better neighborhood attainment compared to Section 8. Treatment effects were largest for New York and Los Angeles.
Neighborhood poverty level	Moving to Opportunity[2]	Osypuk, 2019[2]	Families who moved from public housing with a voucher	Randomization to voucher group vs. control simultaneously decreased neighborhood percent of poverty

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
Housing discrimination	Moving to Opportunity[2]	Osypuk, 2019[2]	Families who moved from public housing with a voucher	MTO participants experienced housing discrimination in their new neighborhoods. Effects of housing discrimination on mental health were harmful, but imprecise
Social relations	8 types of community infrastructure interventions (e.g., community hubs; changes to neighborhood design; green and blue space)	Bagnall, 2018	All age groups; 10 studies included children and/or adolescents	Moderate evidence of positive effects on community wellbeing outcomes. By *intervention types*: *For community hubs interventions:* -Social cohesion; -Social capital; -Trust between people; -Wider social networks *For changes to neighborhood design:* -Sense of belonging; -Sense of pride *For green and blue space:* - Social interactions; - Social networks *Bonding and bridging social capital*
Teen-Level Outcomes				
Psychological distress	Moving to Opportunity	Nguyen, 2016[2]	Adolescents aged 12 to 19 years in families offered housing vouchers versus those remaining in public housing	Chicago participants experienced null treatment effects. Outside Chicago, boys experienced detrimental effects, whereas girls experienced beneficial effects.
Psychiatric symptom levels (for anxiety, depression, oppositional defiant disorder, conduct disorder)	Great Smoky Mountains Study Quasi-Experiment[4]	Costello, 2003	Teens 13-17 at time of intervention.	After the casino opening, levels of symptoms for oppositional defiant disorder and conduct disorder among the ex-poor fell to those of the never-poor

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
				children, while levels among those who were persistently poor remained high (odds ratio, 1.50; 95% confidence interval, 1.08-2.09; and odds ratio, 0.91; 95% confidence interval, 0.77-1.07, respectively). Anxiety and depression symptoms were unaffected.
School-Level Interventions				
School-Level Outcomes				
Classroom climate	Mindfulness-based interventions for teachers	Klingbeil, 2018	Teachers in grades K-12; Findings not reported separately for secondary schools	Not significant
Psychological distress				Statistically significant effects.
Psychological wellbeing of teachers				Small to medium effect (*g*=.431, 95% CI .254, .608)
Teaching practices				Not significant
Teen-Level Outcomes				
Depressive symptoms	Later school start times (2 intervention studies)	Berger, 2018[5]	High schools	Inherent design drawbacks in the studies prevent authors from concluding that delaying a high school's start time will cause students' mental health to improve. Reported results for pre-post studies: Longer sleep durations (30 minutes and 25 minutes) and significantly lower levels of depressive symptoms; depressive symptoms were inversely correlated with sleep duration.
	Universal school-based mental health promotion (mindfulness) program; 1 study)	O'Connor, 2018	12-16-year olds	Moderate reduction in low-grade depressive symptoms at 3-month follow-up

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	Later school start times (1 study)	Marx, 2017[6]	13-19-year-olds overall; Grades 9-12 for this study	Students in the two later start times (7:25 and 8:30 a.m.) reported less depression than students in the earliest start time (7:15). No significant difference between 8:30 a.m. and 7:25 start times.
Other mental health	Later school start time (1 study)	Berger, 2018[5]	High schools	Inherent design drawbacks in the studies prevent authors from concluding that delaying a high school's start time will cause students' mental health to improve. Reported results for intervention versus comparison schools: Prosocial ▪ Prosocial behavior, emotional symptoms, peer relationship problems, total difficulties: All improved ▪ Conduct problems: no improvement. ▪ Composite mental health (GHQ-12): improved ▪ Time in bed on both school nights and non-school nights: increased.
Sleep duration (school night)	Later school start times: from 9 a.m. to 10 a.m. (1 study)		13-19-year-olds overall; Grades 9-12 for this study	Overall, review suggests later school start times have potential benefits but point to the need for higher quality primary studies. Sleep duration: statistically significant mean difference of 0.49 hours (CI 0.24, 0.74)
Social outcomes	Later school start times (1 study)		13-19-year-olds overall; Grades 9-12 for this study	Feeling accepted by other students: no effect Feeling accepted by adults: no effect
Social/social and emotional competence	Whole School Approach Focused on Mental Health Promotion	Enns, 2016	6-18	A whole school approach focusing on mental health promotion is effective in promoting child and youth mental health

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
Interpersonal-Level Interventions (Interventions with Family, Peers, Coworkers)				
Interpersonal-Level Outcomes				
None available.				
Teen-Level Outcomes				
Depressive symptoms or diagnosis	Parenting interventions to prevent child internalizing problems	Yap, 2016[7]	Birth to age 18 (3 studies focused on adolescents >12-18)	Two studies focused on reducing teen depressive symptoms found a small but significant effect (combined effect size -0.119, CI -0.217, -0,020, p = 0.019).
Internalizing symptoms	Parenting interventions to prevent child internalizing problems	Yap, 2016[7]	Birth to age 18 (3 studies focused on adolescents >12-18)	No effect.
Multi-Level Interventions				
Teen-Level Outcomes				
Emotional and/or social competence	"Up" (school-based multi-level[8] mental health promotion) (1 study)	O'Reilly, 2018	11-15 years old (Grades 5-9) in Denmark	Statistically significant increase in % of children reporting high social and emotional competence pre-post
	MindMatters (multi-tier[school personnel and children) program encouraging respect, tolerance, resilience, communication, problem-solving) (1 study)	O'Reilly, 2018	10-15 years old	Minimal improvement
Favorable attitudes toward domestic violence	Multi-component aimed at	Catalano, 2019	High school	Reduced

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	violence reduction and gender equality, including training for school counselors and parent-involvement facilitation (1 study)		Students in Iran	
Individual Teen-Level Interventions				
Community-Level Outcomes				
Socio-environmental outcomes for adults, peers, organizations, and/or institutions[9]	Youth inquiry (e.g., Youth Participatory Action Research)	Kennedy, 2019	Youth, age unspecified	57.1% of included studies showed positive changes, including: ▪ Microsystem level: practitioner growth; peer group norms ▪ Meso-system level: program development or improvement; research benefits ▪ Exosystem level: school, city, state level policy adoption Studies more likely to report improvements: ▪ used advocacy strategies; ▪ targeted decision-makers; ▪ convened for a longer duration.
Individual Teen-Level Outcomes: Reduction in Psychological Distress				
Anger/anger control/aggression	Universal school-based mental health promotion (life skills training)	O'Connor, 2018	14-16 years old	Reduced anger, improved anger control
	Digital alcohol and drug abuse components of universal preventive mental health programs	Skeen, 2018	10-19	Aggression reduced
Anxious and/or Depressive Symptomatology	Face to face mindfulness,[10] interpersonal skills, emotional regulation, conflict resolution, and	Skeen, 2018	10-19	Reduced anxious and depressive symptomatology

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	digital and combined problem-solving program components of universal preventive mental health programs			
	Finnish derivative of the Penn Resiliency Program (cognitive-behavioral depression prevention program) (2 studies)[11]	Bastounis, 2016[12]	Overall included studies: 8-17. Mean ages in 2 studies: 13 and 14 years of age	No effects on depressive symptoms for teens. Control conditions had better anxiety outcomes across all studies/all age groups.
Anxiety/stress	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: mean effect size 0.18.
	(Yo) Pienso, Siento, Actuo[13]	Catalano, 2019	13-15-year-olds in Low- and Middle-Income Countries (LMIC)	Effect on anxiety was statistically significant but not considered clinically meaningful.
	Anxiety reduction interventions	Feiss, 2019	11-18-year-olds	A higher dose was associated with a greater reduction.
	FRIENDS program (Cognitive Behavioral Therapy [CBT]-based)	Soulakova, 2019 (3)	8-15-year olds	No effect when low quality studies were removed from the analysis
	Exercise to 50-80% of maximum heart rate	Rodriguez-Ayllon, 2019	13-16-year-olds	Positive effect.
	Tai Chi (versus gymnastics [1 study])	Rodriguez-Ayllon, 2019	13-16-year-olds	Significant reduction
Anxiety/anxiety and stress	Universal resilience-focused interventions	Dray, 2017	11-18-year-olds	No effect

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
Depression/Depressive symptoms[14]	Varied "Tier 1" (universal) school-based mental health interventions (3 studies) in context of multi-tiered systems of support [MTSS]) (3 studies)	Arora, 2019	14-20 years of age	2 studies had positive effects; 1 had negative effects
	Selected male-only gender-neutral school and community-based programs to develop young men's wellbeing (8 studies)	Gwyther, 2019	Mean ages 15 and 15.5 years of age	Positive effect
	Mindfulness-based interventions (33 studies)	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: Mean effect size 0.47.
	Mobile app self-report on mood, stress, daily activities, and coping strategies. (1 study)	Punukullo, 2019	Overall 10-19-year-olds. Study: 14-24 years old	Increased emotional self-awareness (ESA) was predictive of a decrease in depressive symptoms; however, the intervention was not causally responsible itself for the decrease in depressive symptoms. Intervention group showed significant increases in ESA with medium to large significant main effects for time, for depression, anxiety, and stress. Analysis suggested that participation in RCT itself enhanced mental healthcare and improved MH outcomes.
	Mobile phone-based multimedia messages (CBT-based texts, video messages, cartoons) (1 study)	Punukullo, 2019	Overall, 10-19-year-olds.	No significant effect of CBT-based program over control. Both programs demonstrated small improvements in depression score immediately after the intervention followed by a worsening of scores at 12-month follow-up.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
			13-17-year-olds	
	Aerobic exercise; Resistance exercise; versus combined aerobic and resistance (1 study)	Rodriguez-Ayllon, 2019	14-18-year-olds	Positive effect for resistance group
	Exercise to 50-80% of maximum heart rate (2 studies)	Rodriguez-Ayllon, 2019	13-16-year-olds	Positive effect
Depressive symptoms	Universal resilience-focused interventions	Dray, 2017	11-18	No effect
Emotional difficulties and behaviors	Mentoring (residential plus 9 months of mentoring) (categorized as social and emotional skills development) (1 study[15])	Barry, 2018	Young people displaying antisocial behavior; non-specified age range	Reduced
Externalizing problems/behaviors	Self-regulation techniques	Van Genugtsen, 2016	Adolescents only	No effect
	Universal resilience-focused interventions	Dray, 2017	11-18	No effect
Identity distress	The Council	Gwyther, 2019	Mean ages 15 and 15.5 years	No effects (positive or negative)
Imbalance (emotional, psychological)	Exercise to 50-80% of maximum heart rate (2 studies)	Rodriguez-Ayllon, 2019	13-16-year-olds	Positive effect
Internalizing symptoms (includes depressive and	Universal Resilience Focused Interventions (includes cognitive-	Dray, 2017	11-18 years of age	Significant overall intervention effect

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
anxiety symptoms)	behavioral-therapy-based)			
	Self-regulation techniques	Van Genugtsen, 2016	Adolescents only	Small to medium effect on internalizing behavior
Masculine ideology	The Council	Gwyther, 2019	Mean ages 15 and 15.5 years	No effects (positive or negative)
Negative affect	Selected mixed gender, gender-neutral school- and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Positive changes, mostly in males
	Social and emotional skills development: Mentoring (residential plus 9 months of mentoring) (1 study[15])	Barry, 2018	Young people displaying antisocial behavior; non-specified age range	Reduced negative emotions
Negative behavior	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: Not a statistically significant effect.
Psychological distress	Universal resilience-focused interventions	Dray, 2017	11-18	No effect
	Aerobics, hip-hop, body conditioning, ice skating (1 study)	Mansfield, 2018	17-22	Aerobics and hip-hop groups had lower psychological distress than body conditioning and ice-skating groups
Stigma	Universal school-based mental health promotion (mental health anti-stigma program; 1 study)	O'Connor, 2018	13-15 years old	Positive changes in students' beliefs and attitudes toward people with mental illness
	Mass Media Digital platforms (1 review, with 22 RCTs)	Das, 2017[16]	11-19, 15-24-year-old	Discrimination against mentally ill: SMD: -.85 to -.17

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
			Urban low-income youth	Prejudice against mentally ill: SMD: -2.94 to 2.40
	Video interventions (various types)	Janouskova, 2017	Young people; 4 of 23 studies were conducted with secondary school students	Findings were mixed, depending on type of intervention, outcome measures, and length of follow-up period. 2 studies had no significant impact; 1 study had positive findings; and 1 had both positive and negative findings.
	Mental health awareness (2 RCTs and 1 Solomon 4 groups design with only high school populations)	Salerno, 2016	Overall, grades 5 through 12. Some studies with high school population	1 out of 3 studies found improvements in attitudes
Stress (perceived)	Stress reduction interventions	Feiss, 2019	11-18 years of age	Targeted interventions were better than universal
	Tai Chi (Cen-style) (1 study)	Rodriguez-Ayllon, 2019	11-16 years of age	No effect
	Mindfulness-Based Interventions (1)	Soulakova, 2019 (3)	8-15 years old	Significant effect, but smaller than for some other measures
	Universal school-based mental health promotion (stress management program; 2 mindfulness programs; 1 study each)	O'Connor, 2018	12-14 years old (stress management) 12-16 years old (mindfulness) 15-18-year olds (mindfulness)	Stress management program: Reduced stress Mindfulness (12-15-year-olds and 15-18-year olds): Reduced stress
	Interactions with nature	Tillman, 2018	Children and teenagers, 18 or	Findings not available by age.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
			younger, mostly early adolescents (not defined)	Overall, with removal of low-quality papers, 4 of 5 findings were significantly positive.
Suicide-related	Universal school-based mental health promotion (suicide prevention and depression awareness; 1 study)	O'Connor, 2018	14-18-year olds	Reduced suicidal ideation Improved ability to identify support Increase in help-seeking behaviors
	School-based suicide prevention programs	Das, 2017[16]	11-19, and 15-24, years of age	Increased short-term knowledge of suicide Increased knowledge of suicide prevention No effect on suicide-related attitudes or behaviors
Tension-anxiety scale	Kripalu yoga (1 study)	Pandey, 2018	Grades 11 and 12	Decreased relative to control
Total mood disturbance	Kripalu yoga (1 study)	Pandey, 2018	Grades 11 and 12	Decreased relative to control
Total symptom scores[17]	BiteBack and BiteBack School	Banos, 2017	12-18 years of age	Significant decrease
Individual Teen-Level Outcomes: Positively-Framed Outcomes				
Positive mental health outcome (aggregate)	Digital platform interventions (8 reviews)	Das, 2017[16]	NA	Person plus environment: SMD: .27, 95% CI: .16 to .37 (statistically significant) Environment only: SMD: .38, 95% CI .15 to .60 (statistically significant)
Multiple outcomes: School: school engagement (e.g., school connectedness, attendance, school liking); Social: social skills (e.g., cooperation, empathy, turn-taking), perceived social support, relationship quality (e.g., perceptions of relationship quality with teachers, parents, peers)	Youth mentoring programs (one-on-one, intergenerational)	Raposa, 2019	9-16-year-olds; mean age of 12.	Overall effect size across outcomes and programs: Hedges g 0.21. Programs with better outcomes had the following characteristics: ▪ Higher percentage of male mentees. ▪ Higher percentage of male mentors.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
				▪ Higher percentage of male mentors who worked in the helping professions. Programs with smaller effects had the following characteristic: ▪ Programs specifying longer meeting durations Many other variables were measured as potential moderators of effects, but showed no impact on findings.
Attention	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: Not a statistically significant effect.
Body image	Aerobic exercise Resistance exercise Combined aerobic and resistance (1 study)	Rodriguez-Ayllon, 2019	14-18-year-olds	No difference between experimental and control
	Body image interventions	Soulakova, 2019 (3)	14-16 years old	No effects. (Effects were found for younger adolescents)
Body image: trait body surveillance (negative outcome)	Yoga (1 study)	Rodriguez-Ayllon, 2019	13-17	Significant moderate decreases, inversely related to change in physical self-worth
Cognitive autonomy	Selected male-only gender-neutral school and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5 years of age	Positive effect
Communication and facilitation skills	Social and emotional skills development: Mentoring (residential; peer-led) (1 study)	Barry, 2018	15-25-year-olds	Positive effect
Community engagement	Social and emotional skills development: Youth community	Barry, 2018	8-18-year-olds, primarily male from	Positive impact on community engagement

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	sports intervention (1 study)		black and ethnic minority groups recruited from inner-city London schools	
Connectedness	Student Success Skills (Emotional Regulation) (1 study)	Pandey, 2018	12-15 years old	Effect on females
Coping skills/Coping and resilience	Social and emotional skills development: Mentoring (residential; peer-led) (1 study)	Barry, 2018	15-25-year-olds	Positive effect for coping skills
	Universal school-based mental health promotion (stress management program; SEL program; 1 study each)	O'Connor, 2018	12-14 years old (stress management; SEL)	Stress management: Improved coping strategies, increased use of relaxation strategies SEL: Effective coping strategies
Emotional intelligence/emotional attention and clarity/emotional competence/emotional adjustment/emotional awareness	Selected male-only gender-neutral school and community-based programs to develop young men's wellbeing (8 studies)	Gwyther, 2019	Mean ages 15 and 15.5 years of age	Positive effect
	Selected mixed gender, gender-neutral school- and community-based programs to develop young men's wellbeing (18 studies)	Gwyther, 2019	Mean ages 15 and 15.5	Positive changes, mostly in males
	Life skills education (1 study)	Nasheeda, 2019	15-17-year-olds	Emotional adjustment improved
	Universal school-based mental health promotion (mindfulness; 1 study)	O'Connor, 2018	15-18-year olds	Positive changes in students' beliefs and attitudes toward people with mental illness
Emotional well-being	Interactions with nature	Tillmann, 2018	Children and teenagers, 18 years	Findings not available by age group.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
			old and younger	With removal of low-quality papers, only 10 out of 23 findings identified a significant positive relationship.
Empathy	Life skills education (1 study)	Nasheeda, 2019	15-17-year-olds	Improved
Executive functions	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: Not a statistically significant effect.
Explanatory style	Finnish derivative of the Penn Resiliency Program (cognitive-behavioral depression prevention program) (2 studies)[18]	Bastounis, 2016[19]	Overall included studies: 8-17. Mean ages in 2 studies: 13 and 14 years of age	No effect on explanatory style for all studies/all age groups.
Feelings	High-intensity interval training with aerobics v control and combined v control (1 study)	Rodriguez-Ayllon, 2019	14-16 years old	Feelings improved significantly only in the aerobic group
Happiness	Tai Chi v gymnastics	Rodriguez-Ayllon, 2019	13-16	No effect of experimental group
Help-seeking (likelihood of seeking, increased understanding of how for self and others)	Selected male-only gender-sensitive community- and school-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages of 15 and 15.5	Positive
	Video intervention (documentary intervention with education; 1 study)	Janouskova, 2017	Young people; 4 of 23 studies were conducted with secondary school students	Mixed findings for attitudes toward help-seeking. No significant effect on help-seeking behavior.
	Mental health awareness (1 RCT and 1 Solomon 4 groups design with only high school populations	Salerno, 2016	Overall, grades 5 through 12. Some studies with	Neither study found improvements in help-seeking.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	measured help-seeking)		high school population	
Interest in diversity of contact	Selected mixed gender, gender-neutral school- and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Increased, mostly in males
Life satisfaction/sense that life is worthwhile	Social and emotional skills development: Social action interventions (multi-component) (2 RCT studies)	Barry, 2018	14-25-year-olds, mostly from disadvantaged areas	Positive effects on life satisfaction and life seen as worthwhile
	BiteBack and BiteBack School (Online positive psychology interventions)	Banos, 2017	12-18-year-olds	No improvement in life satisfaction scores.
Mental health literacy (knowledge)	Mental health awareness (2 RCTs and 1 Solomon 4 groups design with only high school populations)	Salerno, 2016	Overall, grades 5 through 12. Some studies with high school population	All 3 studies found improvements in knowledge of specific disorders or mental health literacy generally.
Mental health/mental health status	Selected Mixed Gender, Gender-Neutral School- and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Positive changes, mostly in males
	CrossFit exercise (1 study)	Rodriguez-Ayllon, 2019	15.4 mean age	No significant effects for full study sample
	Interactions with nature	Tillman, 2018	Children and teenagers, 18 years old and younger, most early adolescents	Findings not available by age group. Overall: with removal of low-quality papers, 8 out of 12 findings identified a significant positive relationship.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	E-health4U	Banos, 2017	3rd and 4th year of secondary school	Minor improvement.
Mindfulness	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active controls: Mean effect size 0.42 (CI .16 to .67]. Larger effect sizes were associated with older ages.
Motivation to change	Social and emotional skills development: Mentoring (residential plus 9 months of mentoring) (1 study[20])	Barry, 2018	Young people displaying antisocial behavior; non-specified age range	No difference
Optimism	Selected mixed gender, gender-neutral school- and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Positive changes, mostly in males
Positive mental health promotion outcomes	Components of universal adolescent mental health interventions ▪ Alcohol and drug education ▪ Emotional regulation ▪ Interpersonal skills ▪ Skills to resist peer pressure	Skeen, 2019	10-19	Positive impact
Positive wellbeing	Volleyball (1 study)	Mansfield, 2018	13-18-year-old females	Effects depended on extent to which the sport met students' psychological needs
	Aerobics, hip-hop, body conditioning, ice skating	Mansfield, 2018	17-22-year-olds	Aerobics and hip-hop rated positive wellbeing higher than body conditioning and ice-skating group;
Positive outlook	Social and emotional skills	Barry, 2018	Young people	No difference

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	development: Mentoring (residential plus 9 months of mentoring) (1 study[21])		displaying antisocial behavior; non-specified age range	
Positive youth development outcomes (grouped as social and emotional skills; attitudes toward self, others and school; positive social behavior; emotional distress; academic performance; conduct problems; substance use; and additional outcomes in some studies [e.g., high school graduation; relationships])	School-based Social and Emotional Learning Interventions for Positive Youth Development	Taylor, 2017[22 23]	K-12; adolescent developmental stage defined as ages 14-18/grades 9-12	Positive combined effect size[24] .18* (CI .05-.31) was statistically significant. Outcomes for individual outcomes are not available for adolescents. Across all studies, two variables emerged as significant predictors: --Higher total sample attrition (lower effective size). --Participant age was initially negatively related to positive effect size, but when a meta-regression of the two predictors (attrition and age) was conducted, the age difference was not significant. Other demographics (% white students, % black students, % female, school community location, domestic or international study) were not associated with the combined effect size.
Preparation for adulthood	Variety of interventions	Burrus, 2018	Adolescents including middle school	Improvements in: Healthy relationships Parent-child communication Adolescent development
Psychological wellbeing	Gender-sensitive Community- and school-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages of 15 and 15.5	Positive
	High-intensity interval training (HIIT) (Exercise-based interventions) (1 study)	Pandey, 2018	Grades 9 and 10	No statistically significant effect
Quality of life - enjoyment and satisfaction	Gender-sensitive Community- and school-based programs to develop	Gwyther, 2019	Mean ages of 15 and 15.5	Positive

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	young men's wellbeing			
Reshaped perceptions about "being a man"	Community- and School-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages of 15 and 15.5	Positive effects (based on participant comments)
Relationship skills	Social and emotional skills development: Mentoring (residential; peer-led) (1 study)	Barry, 2018	15-25-year-olds	Positive effect
Resilience	Mindfulness-Based Interventions (1)	Soulakova, 2019	Grades 1-12	Significant, although smaller than for other measures.
	Interactions with nature	Tillman, 2019	Children and teenagers, 18 and younger, mostly early adolescents (not defined)	Findings not reported by age group. Overall, 3 out of 5 findings were positive and significant.
Self-efficacy[25]	The Council[26]; Selected male-only gender-neutral programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Significant positive effects for school self-efficacy and future self-efficacy (males only)
	Selected mixed gender, gender-neutral school- and community-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5	Positive changes, mostly in males
Self-efficacy: social	Yoga (1 study)	Rodriguez-Ayllon, 2019	11-16-year-olds	Significant increase
Self-esteem/self-confidence/self-image/self-worth	Life Skills for Mental Health	Catalano, 2019 (94, with 2 for teens without high risk or existing	14-16-year-olds	Improved self-esteem

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
		problems)		
	Selected male-only gender-sensitive Community- and school-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages of 15 and 15.5	Positive effects
	Life skills education (4 studies)	Nasheeda, 2019	Varied, all high school students	Self-esteem, self-image, and confidence improved
	Aerobic exercise to achieve 60-80% maximum heart rate (1)	Rodriguez-Ayllon, 2019	13-19 years old	Positive effect (all females)
	Aerobic exercise Resistance exercise Combined aerobic and resistance (1 study)	Rodriguez-Ayllon, 2019	14-18-year-olds	All groups improved on global self-esteem, with greater changes in the resistance group.
	Active video game program (1 study)	Rodriguez-Ayllon, 2019	15-19-year-olds	No effects
	Social and emotional skills development: Mentoring (residential; peer-led)	Barry, 2018	15-25-year-olds	Positive effect for confidence
	Youth-led community development program (1 qualitative study)	Pennington, 2018	Not specified	May have had an effect
	Interactions with nature	Tillman, 2018	Children and teenagers, 18 and younger, most early adolescents (not defined)	Findings not available by age group. Overall, 10 out of 13 findings were non-significant.

Wellbeing Outcome, by Socio-environmental Development Intervention Level and Outcome Measurement Level	Intervention Type/ Specific Intervention	Review or Major Study (Most Recent First)	Age or Other Group in Reviewed Studies	Evidence Summary (including notable subgroup differences, if noted by reviewer)
	Community-based creative activities	Das, 2017[16]	11-19, and 15-24, year-olds	Increased self-confidence Increased self-esteem
	Self-regulation techniques	Van Genugtsen, 2016	Adolescents only	Small to medium effect on self-esteem
Self-reflection	Community- and school-based programs to develop young men's wellbeing	Gwyther, 2019	Mean ages 15 and 15.5 years	Positive effects (based on participant comments)
Self-Regulation/emotion regulation	Universal school-based mental health promotion (mindfulness program; 1 study)	O'Connor, 2018	15-18 years old	Improved emotion regulation
	Mindful Yoga (Mindfulness/Yoga interventions) (1 study)	Pandey, 2018	Grades 9-12	No effect
	Personal & Social Responsibility model (Exercise-based interventions)	Pandey, 2018	Students from 3 public schools (mean age of 13.6 years)	Positive effect on process self-regulation
Social adjustment	Life skills education	Nasheeda, 2019	15-17-year-olds	No improvement
Social behavior	Mindfulness-based interventions	Dunning, 2019	Mean ages from 4.7 to 17.4; most were older than 12.	For RCTs with active control conditions: Not a statistically significant effect.

Endnotes

1. Note that the intervention itself did not comprise efforts to change the outcomes listed in these rows. Rather, the outcomes were measured post-hoc to examine whether the new neighborhoods (requiring higher rent payments) actually had more health-promoting environments.
2. For details on all Moving to Opportunity' citations, see the single Evidence Table, Moving to Opportunity.
3. There are no reviews per se of the Moving to Opportunity's experiment's effects on teen mental health. The citations are for individual studies using aspects of the MTO database. All citations are summarized on the Moving to Opportunity Evidence Table in Appendix 5.
4. Halfway through the Great Smoky Mountains study, an American Indian tribe opened a casino and began sharing proceeds with families in the tribe. The Great Smoky Mountains study was originally an epidemiological study of the incidence and progression of mental health problems among children in a defined geographic area (American Indians and others).
5. We included only the intervention studies included in the review.
6. This 2017 review is included because of differences between Marx, 2017, and Berger. Marx, 2017, is a Cochrane Collaboration review with more rigorous study inclusion criteria than the Berger et al. (2018) review. Berger et al. included studies of associations as well as interventions; Marx et al. included only interventions (RCTs, quasi-experiments, controlled before and after, interrupted time series). However, Berger et al. focused more on psychological outcomes than did Marx et al. We only reported findings from intervention studies from the Berger et al review; both reviews come to the same conclusion that more primary research, of higher quality, is needed, before conclusions can be drawn.
7. Note that Yap subsequently (2019) reported on the medium-term effects of a tailored web-based parenting intervention tested in a randomized controlled trial. The RCT showed some success Yap MBH, Cardamone-Breen MC, Rapee RM, Lawrence KA, Mackinnon AJ, Mahtani S, Jorm AF. 2019. Medium-Term Effects of a Tailored Web-Based Parenting Intervention to Reduce Adolescent Risk of Depression and Anxiety: 12-Month Findings From a Randomized Controlled Trial J Med Internet Res 2019;21(8):e13628 DOI: 10.2196/13628 PMID: 31418422. https://www.jmir.org/2019/8/e13628/
8. Parent involvement, staff skills training, activities for children/adolescents.
9. See Anyon et al. for youth outcomes.
10. The highest positive effect size was for the Mindfulness component of interventions (-0.219).
11. Also see Explanatory Style.
12. Kept Bastounis (2016) as a key document for its inclusion of the Penn Resiliency Program. We could identify no subsequent reviews of the Penn Resiliency Program, but the Program is still active, according to its website. See https://ppc.sas.upenn.edu/services/penn-resilience-training.
13. Think, Feel, Act.
14. Also see anxiety and depressive symptomatology, internalizing symptoms and total symptom score outcomes.
15. Study was the one of strongest quality, among 3 mentoring studies with young people at risk of criminality
16. We report on the Das 2017 "overview of reviews" only for Digital Platform interventions, Community-based Creative activities, and school-based suicide prevention interventions because we could find no subsequent systematic reviews of these intervention types. Further, most of the interventions included in Das et al. 2017 are focused on treatment or prevention of disorders.
17. Also see internalizing symptoms, anxiety symptoms, and depression symptoms
18. Also see anxiety and depression symptoms.
19. We kept Bastounis (2016) as a key document for its inclusion of the Penn Resiliency Program. We could identify no subsequent reviews of the Penn Resiliency Program, but the Program is still active, according to its website. See https://ppc.sas.upenn.edu/services/penn-resilience-training.
20. Study was the one of strongest quality, among 3 mentoring studies with young people at risk of criminality
21. Study was the one of strongest quality, among 3 mentoring studies with young people at risk of criminality
22. We kept this 2017 review in the RER because it appears to be the most recent systematic review that enabled analysis of SEL interventions by adolescent/teen age. The review by Barry. et al. (2018) included SEL; however, the review focused only on interventions implemented in the United Kingdom. Taylor et al. (2017) included both U.S. and international interventions.
23. Note that authors of this review included two (Taylor and Weissberg) employed at the Center for Academic, Social, and Emotional Learning (CASEL).
24. According to the authors, "in order to examine the effectiveness of SEL interventions across demographic groups, it was necessary to collapse the outcome categories into a single intervention level ES to obtain sufficient sample sizes." Only 11% of 82 interventions focused on adolescents ages 14-18/grades 9-12.
25. Also see Skeen effects of programs with self-efficacy components
26. The Council intervention aimed to encourage solidarity amongst young men, question maladaptive stereotypes, and recognize strengths and collective responsibilities.

Moving Policy Upstream to Advance Adolescent Flourishing

Rapid Evidence Review Appendix 5: Evidence Tables

D. Dougherty, N. LeBlanc, P. Armstrong, E. Cope,
and the AcademyHealth & ACT for Health Team

With support from Well Being Trust

September 30, 2019

1. Arora PG, Collins TA, Dart EH, Hernandez S, Fetterman H, Doll B. Multi-tiered Systems of Support for School-Based Mental Health: A Systematic Review of Depression Interventions. School Mental Health [Internet]. 2019 June [cited 2019 Aug 13]; 11(2):240-264. Available from: https://link.springer.com/article/10.1007%2Fs12310-019-09314-4				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: School-aged youth ages 6 to 21 years.	**Date range for review:** 1990-2017	**# of studies included:** 119	As noted by author: Review only dates back until 1990. Decision to conduct a systematic review instead of a meta-analysis resulted in a less formal assessment of these programs when recent meta-analyses have demonstrated that these types of interventions are effective.	Includes universal, selected, and targeted interventions. Essentially argues for targeted within universalism.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: 11-14 (Chaplin et al., 2006), 11-17 (Connell & Dishion, 2017), 15-17 (Hains et al., 1994), 11-13 (Hoying & Melnyk, 2016), 13-14 (Hoying et al., 2016), 15-20 (Le & Gobert, 2015), 14-16 (Melnyk et al., 2015), 12-15 (Mendelson et al., 2015), 11-14 (Sibingo et al., 2016), 10-14 (Smokowski et al., 2016).		**Hi-Level Findings**: 30 studies focused on Tier 1 programs. 23 out of the 30 studies yielded positive results. All three tiers contained programs identified as effective (77.5% in Tier 2, 78.9% in Tier 3). However, the authors note that there are a swath of implementation and population issues that have yet to be addressed, and that solving these issues is critical to delivering an effective MTSS.		
Intervention Type/Name/Df—**Overall:** A multi-tiered system of support (MTSS) involves the delivery of evidence-based services along a continuum. Universal, or Tier 1, services are implemented with the goal of preventing MH concerns which might serve as a barrier to academic achievement. Tier 2, or selective, services are delivered with the goal of remediating students at risk for mental health concerns, while Tier 3, or indicated or intensive, services are implemented with the goal of treating youth with the highest level of mental health need.	**Databases searched for review:** PsycINFO, ERIC.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Penn Resiliency Program (Chaplin et al., 2006), Family Resource Center (Connell & Dishion, 2017), stress intervention (Hains et al., 1994), COPE (Hoying & Melnyk, 2016; Hoying et al., 2016; Melnyk et al., 2015), Restoring the Native American Spirit (Le & Gobert, 2015), RAP club (Mendelson et al., 2015), Mindfulness intervention (Sibingo et al., 2016), Positive Action Program (Smokowski et al., 2016).	**Review inclusion** criteria—Focus on study methodology: Articles included in the review must describe a prevention or intervention study that targeted or discussed depressive symptoms in school-aged youth ages 6-21 in a US school setting.			
Outcomes examined **overall— include all but highlight PSEWB outcomes**: Primarily anxiety and depression symptomology.	**Review exclusion** criteria—Focus on study methodology: Articles were excluded from the review if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Depressive disorders and depression symptomology (Chaplin et al., 2006; Connell & Dishion, 2017), anxiety/depression symptomology (Hains, 1994), weight and mental health (Hoying & Melnyk, 2016; Hoying et al., 2016; Melnyk et al., 2015), suicidality (Le & Gobert, 2015), trauma (Mendelson et al., 2015), stress and trauma (Sibingo et al., 2016), emotional health (Smokowski et al., 2016).	**Guidance used to structure review (e.g., PRISMA, GRADE): NA**			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools **Country(ies):** U.S. **State/region/locality(ies) (even within other countries): NA** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Individual				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Chaplin et al., 2006	11-14	Penn Resiliency Program	Mixed results on depressive disorder/ symptoms. Post-test ES of 0.80. Found significant intervention effects on secondary variables (e.g., hopelessness and attendance).	From Table 1 only the primary focus of each intervention could be gleaned.
Connell & Dishion, 2017	11-17	Family Resource Center	Mixed results on depressive disorder/ symptoms. No ES reported.	
Hains, 1994	15-17	Stress intervention	No significant results observed on anxiety/ depression symptoms.	
Hoying & Melnyk, 2016	11-13	COPE	Positive significant effect observed on weight and mental health (ES = 0.22).	
Hoying et al., 2016	13-14	COPE	Positive significant effects observed on weight and mental health (ES = 0.16).	
Le & Gobert, 2015	15-20	Restoring the Native American Spirit	Positive significant effect observed on suicidality (No ES provided).	
Melnyk et al., 2015	14-16	COPE	Positive significant effects observed on weight and mental health (ES = 2.37).	
Mendelson et al., 2015	12-15	RAP club	Positive significant effect observed on trauma (ES = 0.10).	
Sibingo et al., 2016	11-14	Mindfulness	Positive significant effects observed on stress and trauma (No ES provided).	
Smokowski et al., 2016	10-14	Positive Action Program	No significant effect observed on emotional health.	

2. Bagnall A, South J, Di Martino S. 2018, Mar. A systematic review of interventions to boost social relations through improvements in community infrastructure (places and spaces). London: What Works Centre for Wellbeing. https://whatworkswellbeing.org/product/places-spaces-people-and-wellbeing/				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: No explicit range of ages/ developmental groups, though focus was for adults (loosely defined as aged between 16 and 65).	**Date range for review:** 1997-2018	**# of studies included: 51**	Most of the evidence was of poor, or poor to moderate quality. The better-quality evidence was qualitative in nature, and most of the review's findings therefore come from the thematic synthesis of qualitative evidence, supplemented by quantitative evidence where applicable.	Review excluded studies that included only older adults or only children. Only 14 studies were universal/ open to all. 15 studies were of populations in "areas of deprivation"; 7 studies included racial and ethnic minority groups; 5 studies included economically disadvantaged people.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: (10 studies) (Blake and Cloutier-Fisher 2009, Daniels et al. 2009, Gomez- Feliciano et al. 2009, Mangadu et al. 2016, Ohmer et al. 2009, McLean and Rahder 2013, Morris and O'Brien 2011, Murray and Devecchi 2016, Wells et al. 2012, Zieff et al. 2016).		**Hi-Level Findings:** MODERATE evidence that community hubs may promote **social cohesion** through the mixing of different social or age/ generational groups; increase **social capital** and build **trust between people** in communities; increase **wider social networks and interaction** between community members; and increase individuals' knowledge or skills. MODERATE evidence that changes to neighbourhood design may positively affect **sense of belonging and pride** in a community. MODERATE evidence that **green and blue space interventions that provide the opportunity to participate in activities or meetings** improve social interactions, increase social networks, and bonding and bridging social capital, increase physical activity and healthy eating, and improve community members' skills and knowledge. 2 studies in the review showed no impact; both were "top down urban renewal projects." The review also found evidence from qualitative studies that place and space interventions can have **potentially negative effects** in terms of **some residents feeling excluded,** particularly in relation to events that target or celebrate particular groups. The review found evidence that place and space interventions that provide a focal point or a targeted group activity may be useful in (a) promoting social cohesion between different groups and (b) overcoming barriers that prevent some people in marginalised groups from taking part in activity. The qualitative synthesis of process outcomes identified **some key strategies for success when implementing community infrastructure changes** to place or space, which included: accessibility; a comfortable, friendly and safe environment; involvement of community members in organisation and planning of community infrastructure changes; involvement of skilled facilitators; flexibility; providing a focal point or reason to interact; avoiding exclusion; looking at longer term outcomes and sustainability; and involving volunteers.		

Intervention Type/Name/Df—**Overall:** Community infrastructure: The physical places and spaces where people can come together, formally or informally, to interact and participate in the social life of the community. Eight intervention categories impacting community infrastructure: community hubs; events; local neighbourhood design; green and blue space; place-making; alternative use of space; urban regeneration; and community development.	**Databases searched for review:** PsycInfo, MEDLINE, CINAHL, Social Policy and Practice (covers Social Care Online and Idox), Social Sciences Citation Index, Academic Search Complete, LeisureTourism, Hospitality and Tourism Complete, Avery Index, GreenFiles and Urban Studies Abstracts. Grey literature also searched through OpenSigle.	**Adolescent-Specific Findings:** All 10 studies with adolescents combined adolescents with other populations; after scrubbing through individual studies none of the individual studies separated their adolescent-specific results either.		
Intervention Type/Name/Dfs—**examined for 13-18-year-olds or equivalent (specify)**: NA	**Review inclusion** criteria—Focus on study methodology: Studies that included any intervention (formal or informal) which were designed to improve, or make better or alternative use of, community infrastructure to improve wellbeing. While focus was given to studies that included evidence for adult populations, children and adolescent findings were also included.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Social relations, community wellbeing or individual wellbeing outcomes.	**Review exclusion** criteria—Focus on study methodology: Studies that focused on only older adult or only children (as defined by the study authors) were excluded. Studies that only provided descriptive information or commentary were excluded.			
Outcomes examined for **13-18-year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: NA	**Guidance used to structure review (e.g., PRISMA, GRADE):** WWCW Methods Guide, PRISMA, PRISMA-Equity guidelines			
Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds** (Nation, Community, Interpersonal) – Community wellbeing, social relations **Specify outcome and for whom/what it is measured:**				
Setting(s): **Country(ies):** Mostly USA; UK, Australia, Turkey, Spain, Switzerland, Germany **State/region/locality(ies) (even within other countries): Mostly urban** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Community/Neighborhood				

3. Banos, Online Positive Interventions to Promote Well-being and Resilience in the Adolescent Population: A Narrative Review. Frontiers in Psychiatry [Internet]. 2017 Jan 30 [cited 2019 July 26]; 8:10. Available from: https://www.ncbi.nlm.nih.gov/pubmed/28194117				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: middle or high school students	**Date range for review:** 2000-2016	**# of studies included:** 48		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: 12-18 year olds (Manicavasagar et al., 2014; Burckhardt et al., 2015), Adolescents (age not defined) (Redzic et al., 2012; Redzic et al., 2014), 3rd and 4th year secondary school students (Bannink et al., 2014), adolescent girls aged 10-14 (Fang & Schinke, 2013).	**Databases searched for review:** ERIC, PsycINFO, MEDLINE, SCOPUS, ProQuest Sociological Abstracts, Informit, JSTOR, SAGE, and Taylor and Francis Online.	**Hi-Level Findings:** In general all studies showed positive results, decreasing anxiety and depression scores, and increasing well-being.	As noted by author: In this review, no system uses mobile phone resources to carry out the interventions and nurture interpersonal relationships. However, since smartphones or similar devices were not considered as keywords it is possible that some systems were not detected.	
Intervention Type/Name/Df—**Overall:** Positive technology/internet-based positive technology; positive interventions delivered over the Internet as effective and sustainable health promotion tools; all studies used a website to deliver the PPIs, one study also used social network (Facebook) and email, and another one also used text messages reminders. PPIs are exercises (e.g., counting your blessings, practicing kindness, expressing gratitude, using personal strengths, etc.), which have demonstrated empirically to increase positive emotions, satisfaction with life, or other positive states.		**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18-year-olds or equivalent (specify)**: Bite Back program (Manicavasagar et al., 2014; Burckhardt et al., 2015), InJoy (Redzic et al., 2012; Redzic et al., 2014), E-health4Uth (Bannink et al., 2014), Mother-Daughter Prevention Program (Fang & Schinke, 2013).	**Review inclusion** criteria—Focus on study methodology: Studies that were included 1) focused on proving the efficacy of an online PPI to promote well-being and resilience in adolescent population; 2) were published until April 2016; and 3) were randomized controlled trials (RCTs).			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: well-being and resilience, anxiety and depression scores	**Review exclusion** criteria—Focus on study methodology: Studies that only involved primary/ elementary school students or were concerned with topics such as teacher wellbeing or the work of school counsellors, psychologists, or psychiatrists were excluded. Studies that only involved constructs such as physical school environments, classroom-level climates, home or family environments, health literacy, values or religious education, and physical health were also excluded.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: depression symptoms, stress, anxiety symptoms, total symptom scores, well-being (Manicavasagar et al., 2014; Burckhardt et al., 2015), coping and emotion regulation, depressive symptoms, engagement (Redzic et al., 2012), social and learning domains, engagement quality of intervention (helpfulness, fun, interesting) (Redzic et al., 2014), health-related quality of life, condom use during intercourse, drug use, mental health status (Bannink et al., 2014), mother-daughter closeness, mother-daughter communication, maternal monitoring, parental rules against substance use, self-efficacy, refusal skills, intention of using substances in the future, depressive mood, body esteem, substance use normative beliefs (Fang & Schinke, 2013).	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			

Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured: N/A**				
Setting(s): School-based, Online **Country(ies):** US, Australia, Netherlands **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Individual				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Manicavasagar et al., 2014	12-18 years of age	Bite Back program	Bite Back participants with high levels of adherence had significant decreases in depression and stress and improvements in well-being when compared to control group. Bite Back participants who visited the site more frequently had significant decreases in depression and anxiety and improvements in well-being compared to control group.	
Burckhardt et al., 2015	12-18 years of age	Bite Back program (school)	Both conditions saw reductions in depression, stress, and total symptom scores without any significant differences or significant improvements in life satisfaction scores post intervention.	
Redzic et al., 2012	Adolescents (age not defined)	InJoy	InJoy showed good but small effects on coping and emotion regulation, and less increases in the progression of depressive symptoms in students with low-risk of depression. No significant effects on decreasing depressive symptoms in students at high-risk of depression. Significant differences in engagement when compared to control group.	
Redzic et al., 2014	Adolescents (age not defined)	InJoy	Revised InJoy was rated higher on the targeted social learning domains and as significantly more engaging (i.e., helpful, interesting, fun)	
Bannink et al., 2014	3rd- and 4th-year secondary school students	E-health4Uth	Compared to the control group, the E-health4Uth intervention group showed minor positive results in health-related quality of life and condom use during intercourse among adolescents of Dutch ethnicity. E-health4Uth and consultation intervention group showed minor positive results in the mental health status of adolescents, but a negative effect on drug use in boys.	
Fang & Schinke, 2013	Adolescent girls aged 10-14	Mother-Daughter Prevention Program	Compared to the control group, intervention girls reported higher levels of mother-daughter closeness, greater mother-daughter communication, more maternal monitoring, and enhanced parental rules against substance use at 2 year follow up. Intervention arm girls also reported stronger self-efficacy, greater refusal skills, and lower intention of using substances in the future. Furthermore they reported significantly fewer instances of using alcohol, marijuana, and prescription drugs for non-medical purposes.	

4. Barry MM, Clarke AM, Morreale SE, Field CA. A Review of the Evidence on the Effects of Community-based Programs on Young People's Social and Emotional Skills Development. Adolescent Research Review [Internet]. 2018 March [cited 2019 July 26]; 3(1):13-27. Available from: https://link.springer.com/article/10.1007/s40894-017-0055-2				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Youth aged 13-19 years	**Date range for review:** 2004-2014	**# of studies included:** 14		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: (see table)		**Hi-Level Findings:** there are a small but growing number of robust studies in the UK providing evidence of the effectiveness of community-based programs that develop young people's social and emotional skills. The quality of the data collection methods used for assessing the impact of interventions on social and emotional wellbeing outcomes was identified as a methodological weakness. The evidence from interventions aimed at increasing social and emotional skills through creative arts and sports-based activities in the UK is currently quite limited due to a lack of robust study designs and poor quality analysis.	As noted by author: Due to the heterogeneity of the evaluation studies identified, a quantitative synthesis of the findings from the intervention studies reviewed was not possible. Therefore, the review findings are based on a narrative synthesis, which does not have the statistical power to examine program effect sizes.	Weak study quality.
Intervention Type/Name/Df—**Overall:** Social Action interventions, Youth Arts and Sports interventions, and Mentoring interventions	**Databases searched for review:** EMBASE, PsycINFO, SCOPUS, Applied Social Science Index and Abstracts, British Education Index. A total of 24 education databases and 8 public health databases were also searched. Additional sources included google Scholar and reference lists of relevant articles, book chapters, and review. Grey literature databases including Zetoc, ETHOS, ProQuest and Google.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see table)	**Review inclusion** criteria—Focus on study methodology: Studies included in this review must involve interventions that 1) address one or more social and emotional skills as outlined by CASEL and the Young Foundation; 2) are implemented in a community-based setting in the UK; and 3) are implemented as a universal intervention with youth in the general population. In addition, programs had to employ a randomized controlled trial (RCT) or quasi-experimental design (QED) and include at least one measure of a social or emotional outcome.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: categories of outcomes coded into: Emotional Skills (ES); Social Skills (SS); and Educational, Health, and Social (EHS) Outcomes.	**Review exclusion** criteria—Focus on study methodology: Intervention implemented with youth who had a diagnosed mental, behavioral, or physical disorder were not eligible for inclusion. Otherwise, exclusion from the review was based on a failure to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see table)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** (see table)				
Setting(s): community-based programs **Country(ies):** UK **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/ neighborhood, school, family, work, recreation, OST):** Community				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Booth, 2014	15-17	National Citizen Service	Emotional Skills (ES): Significant improvement in confidence, happiness, life satisfaction, rating of "life is worthwhile", self-reported anxiety, resilience, self-efficacy, and problem-solving skills. Social Skills (SS): Significant positive impact on social trust, social capital, attitude to others from difference backgrounds, leadership, team work, social competence, communication. Educational, Health, and Social outcomes (EHS): Significant positive impact on interest in education, attitude toward social mixing in local area, community awareness, community engagement, volunteering, intention to vote, education and career aspirations, alcohol and smoking consumption.	Moderate quality rating.
Kirkman, 2016	14-25 years	Voluntary Action within Kent, Youth Social Action Project	ES: Significant positive impact on rating of "life is worthwhile", self-reported anxiety, and empathy. No significant impact on problem-solving or grit. SS: Significant positive impact on cooperation, sense of community, and social trust. EHS: Significant positive impact on community involvement and willingness to volunteer. No significant impact on attitudes towards education.	Moderate quality rating.
Kirkman, 2016	16-19 years	Envision	ES: Significant positive impact on satisfaction with life, rating of "life is worthwhile", empathy, problem-solving skills, and grit. SS: Significant positive impact on cooperation and sense of community. EHS: Significant positive impact on community involvement, attitudes towards education, willingness to volunteer, and employability skills.	Moderate quality rating.
The RKT Ltd., 2015	8-25 years	London Youth Athan 31 Program	ES: No significant impact on subjective wellbeing.	Weak quality rating.
Family Kids and Youth, 2015	11-18 years	Youth United, Youth Social Action Journey Fund	ES: Significant positive impact of empathy and creativity (females), and resilience. No significant impact on confidence, managing feelings, problem-solving, wellbeing. SS: Significant positive impact on communication. No significant impact on planning. EHS: Significant positive impact on community engagement.	Weak quality rating.
Gorard, 2016	13-14 years	Youth United, Youth Social Action Trials	ES: Significant positive impact on confidence. SS: Significant positive impact on team work and willingness to help other. EHS: Significant positive impact on professional aspiration and civic engagement. Significant negative effect on academic attainment.	Moderate quality rating.
Greenhouse, 2012	8-18 years	Greenhouse (community sports intervention)	ES: Significant positive impact on self-confidence, coping skills, happiness, and motivation. No significant impact on self-efficacy. SS: Significant positive impact on social competence and social relationships. EHS: Significant positive impact on community engagement. No significant impact on health score and academic achievement.	Weak quality rating.
Meade, 2008	15-25 years	Getting it Together	ES: Significant positive impact on confidence and coping skills. SS: Significant positive impact on communication and facilitation skills, and relationships skills.	Weak quality rating.
Centre for Analysis of Youth Transitions, 2013	9-13 years	Conflict Resolution Uncut	SS: Significant positive impact on conflict resolution skills. EHS: Significant positive impact on attitudes and behaviors in relation to involvement in knife crime.	Weak quality rating.
Shiner, 2004	15-19 years	Mentoring Plus	ES: Significant positive impact on self-confidence, decision-making, and setting goals. No significant impact on self-esteem. SS: Significant positive impact on socialization. No significant impact on relationships. EHS: Significant positive impact on exclusion from school/truanting rates. No significant impact on substance misuse or levels of offending.	Weak quality rating.

5. Bastounis A, Callaghan P, Banerjee A, Michail M. The effectiveness of the Penn Resiliency Programme (PRP) and its adapted versions in reducing depression and anxiety and improving explanatory style: A systematic review and meta-analysis. Journal of Adolescence [Internet]. 2016 Oct [cited 2019 July 26]; 52:37-48. Available from: https://www.ncbi.nlm.nih.gov/pubmed/27494740				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: students aged 8–17 years	**Date range for review:** 1974-2015	**# of studies included:** 9	Several limitations of the current meta-analysis should be acknowledged. First, the limited number of studies which met the inclusion criteria led to underpowered analysis for the secondary outcomes and two groups in subgroup analyses. Given the scarcity of data, mean differences for one of the secondary outcomes were not aggregated. Second, this meta-analysis assessed the effectiveness of universal PRP and its derivatives only at post-intervention, whereas there is evidence that some effects of PRP may emerge later (Brunwasser et al., 2009, Quayle et al., 2001). Third, effect sizes (ESs) were obtained assuming normality of outcome data distribution, whereas in some studies outcome data distribution was positively skewed (Chaplin et al., 2006). This review confers however, research and practical benefits. First, this review is based on a pre-specified protocol. Second, this meta-analysis provides evidence regarding PRP's suitability for large scale roll-out. Third, this review applied rigid quality criteria, reducing the methodological diversity of the included studies.	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Kindt et al. (2014): 13.42, Tak et al. (2015): 13.91		**Hi-Level Findings**: There was no evidence that universal PRP or its derivatives reduce depression or anxiety and improve explanatory style at post-intervention; therefore, the large scale roll-out of universal PRP –in its current form- cannot be recommended.		
Intervention Overall: Only school-based, universal applications of PRP[1] and its derivatives were included in this review.	**Databases searched for review:** Cochrane Central Register of Controlled Trials (CENTRAL), CINAHL (Cumulative Index to Nursing and Allied Health Literature), EMBASE, MEDLINE (including PubMed), PsycINFO, SCI (Science Citation Index), Science Direct, Scopus. Online databases of grey literature, which were searched, were: Clinical Trials http://clinicaltrials.gov, and ISRCTN Register.	**Adolescent-Specific Findings:** In OVK, greater motivation and self-reported positive atmosphere in the classroom predicted depressive symptoms reduction.		
Intervention examined for 13-18 year-olds or equivalent (specify): OVK, or 'Op Volle Kracht[2], for both Kindt et al. (2014), Tak et al. (2015)	**Review inclusion criteria**: All published randomised controlled trials (RCTs) and cluster RCTs, testing the effectiveness of the universal application of school-based PRP or any of its derivatives, targeting depression and (or) any of the secondary outcomes of interest, compared with any type of control condition (active control such as health management sessions, non-intervention such as usual learning sessions and waiting-list), in English, were eligible for inclusion.			
Outcomes overall—include all but highlight PSEWB outcomes: Depression, anxiety.	**Review exclusion**: Studies were excluded, if they were describing the evaluation of targeted (selective or indicated) applications of PRP and its derivatives; they were not school-based or were not assessing any of the a priori selected outcomes of interest. Lead authors were contacted when there were not enough details about their interventions' conceptual fidelity with PRP. After two unsuccessful contact-attempts, the studies were excluded. In four authors, who were contacted, two of them did not respond and their studies were excluded.			
Outcomes for 13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes: Depression, Clinical depressive symptoms, OVK-specific variables. Anxiety, Hopelessness, **Happiness, Life satisfaction, Optimism, Coping, Self-efficacy**, Academic achievement, Health-risk behaviours, OVK-specific variables	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA, Cochrane Handbook			
Outcomes for Social/built environments and/or people surrounding 13-18 year-olds (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): school **Country(ies):** Australia, the Netherlands, and U.S. **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** school				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*MEAN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*FINDINGS*
Kindt et al. (2014)	13.42	OVK	Depression: Clinical depressive symptoms, OVK-specific variables	No firm conclusions can be drawn about the selective potential of the OVK depression prevention program. In its current form, the OVK program should not be implemented on a large scale in the natural setting for non-high-risk adolescents.
Tak et al. (2015)	13.91	OVK	Depression, clinical depressive symptoms: Secondary outcomes: Anxiety, Hopelessness, Happiness, Life satisfaction, Optimism, Coping, Self-efficacy, Academic achievement, Health-risk behaviours, OVK-specific variables	OVK was not effective in preventing depressive symptoms across the 2 year follow-up.

6. Berger AT, Widome R, Troxel WM. School Start Time and Psychological Health in Adolescents. Current Sleep Medicine Reports [Internet]. 2018 Jun [cited 2019 Aug 23]; 4(2):110-117. Available from: https://www.ncbi.nlm.nih.gov/pubmed/30349805				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: students in grade K-12.	**Date range for review:** No date range provided.	**# of studies included:** 8		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: High school students (Wahlstrom, 1998; Wahlstrom, 2002; Martin et al., 2016), 10th grade students (Vedaa et al., 2012), 8th and 9th grade students (Perkinson-Gloor et al., 2013), boarding school students (Boergers et al., 2014; Owens et al., 2010), secondary school students (Chan et al., 2017).		**Hi-Level Findings:** All four studies that included depression and/or anxiety as outcomes found that students in later starting schools showed fewer symptoms of depression than students in earlier starting schools. Two studies used measures of positive or negative affect; neither finding significant associations between such measures and later school start times. In the majority of studies reviewed, later school start times were associated with greater adolescent psychological health. However, inherent design drawbacks in the studies prevent us from concluding that these associations are causal. There are a wide range of potential benefits, beyond mental health, that later high school start times offer. This encouraging, emergent literature on delayed start times has led many school districts to consider changes to their start times.	As noted by author: Literature on the subject is sparse, and all existing studies reviewed had significant methodological limitations. None of the long-term studies identified included a concurrently measured control group, so psychological effects of school start time could not be separated from seasonal or secular variation or impact of other policies and interventions on sleep and psychological health. The range of psychological outcomes that have been evaluated is incredibly narrow.	
Intervention Type/Name/Df--**Overall:** Later school start time interventions.	**Databases searched for review:** Ovid Medline, PsycINFO, ERIC via EBSCOhost.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: 8:30am vs. 7:30am or 7:15am start times (Wahlstrom, 1998), 8:40am vs. 7:30am (Wahlstrom, 2002), 8:00am in December vs 8:30am in March (Owens et al., 2010), 9:30am on Monday and 8:30am on Friday vs 8:30am on both days (Vedaa et al., 2012), 8:00am vs. 7:40am (Perkinson-Gloor et al., 2013), 8:00am in November vs. 8:25am in March and 8:00am in May (Boergers et al., 2014), 1:25pm vs 7:40am (Martin et al., 2016), 7:45am at baseline and 8:00am at follow-up vs. 7:55am at baseline and follow-up (Chan et al., 2017)	**Review inclusion** criteria—Focus on study methodology: Studies must be peer-reviewed, include a K-12 start time contrast as the exposure, and include a psychologically relevant measure as an outcome to be included in this review.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Depression and anxiety symptoms, positive or negative affect, and behavioral health.	**Review exclusion** criteria—Focus on study methodology: Reviews were excluded based on a failure to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Depressive Symptom Score (School Sleep Habits Survey) (Wahlstrom, 1998; Wahlstrom, 2002; Owens et al., 2010; Boergers et al., 2014), Positive and Negative Affect Schedule (PANAS) (Vedaa et al., 2012), Positive attitude toward life (Perkinson-Gloor et al., 2013), Detection of Alcohol and Drug Problems in Adolescents, Psychological Distress Index of the Quebec Health Survey (IDPESQ) (Martin et al., 2016), General Health Questionnaire (GHQ-12), Strengths and Difficulties Questionnaire (SDQ) (Chan et al., 2017).	**Guidance used to structure review (e.g., PRISMA, GRADE):** None provided.			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured: N/A**				
Setting(s): Schools **Country(ies):** Canada, Hong Kong, U.S., Switzerland, Norway **State/region/locality(ies) (even within other countries):** Minnesota, Rhode Island **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Wahlstrom, 1998	High school students	8:30am vs. 7:30am or 7:15am start times	High school students at an 8:30am start time had significantly lower depression score than 7:15am, non-significantly lower than 7:30am start time students.	No before-after data. No adjustment for potentially confounding variables.
Wahlstrom, 2002	High school students	8:40am vs. 7:30am	Students at 8:40am had significantly lower depression scores than 7:30am start time students.	
Owens, 2010	Boarding school students	8:00am in December vs 8:30am in March	Depression score and percent of students rating self "somewhat unhappy" or "somewhat depressed" lower in March compared to December.	(Uncontrolled before-after study)
Vedaa, 2012	10th grade students	9:30am on Monday and 8:30am on Friday vs 8:30am on both days.	Delayed school start time had no effect on self-reported positive or negative affect.	Only one day of changed school start time per week.
Perkinson-Gloor, 2013	8th and 9th grade students	8:00am vs. 7:40am	No differences in positive attitude toward life in male or female students.	Two-item measure of positive attitude toward life may not be valid. Very unbalanced comparison with less than 13% of students in later-starting schools.
Boergers, 2014	Boarding school students	8:00am in November vs. 8:25am in March and 8:00am in May	Depression score and percent of students rating self "somewhat unhappy" or "somewhat depressed" lower in March compared to November.	(Uncontrolled before-after study) Time 3 results are not presented for variables other than sleep duration.
Martin, 2016	High school students	1:25pm vs 7:40am	No significant difference in alcohol use between morning-star and afternoon-start students. No significant difference in psychological distress between morning-start and afternoon-start students.	Very unusual start time.
Chan, 2017	Secondary students	7:45am at baseline and 8:00am at follow-up vs. 7:55am at baseline and follow-up	Improvement on mental health, prosocial behavior emotional symptoms, hyperactive/inattention, peer relationship problems, total difficulties in intervention school compared to comparison school.	Data collection at intervention and comparison schools was a half-year apart (possible seasonal effects).

7. Burrus BB, Krieger K, Rutledge R, Rabre A, Axelson S, Miller A, et al. Building bridges to a brighter tomorrow: A systematic evidence review of interventions that prepares adolescents for adulthood. American Journal of Public Health [Internet]. 2018 Feb [cited 2019 July 26]; 108(S1):S25-S31. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29443561				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 10-18	**Date range for review:** 1999-2016	**# of studies included: 45**	As noted by author: The search used an extensive array of terms and topics to identify adulthood preparation topics and may have failed to pick up relevant studies because the terms did not fall within the specified search criteria; Several of the studies that met the inclusion criteria used quasi-experimental study designs, had unbalanced baseline characteristics across treatment groups, had high attrition rates, or had unmeasured confounding, so there were fewer high-quality studies on which to make confident conclusions; The studies varied extensively in the extent to which they reported effect size, making it difficult to draw conclusions about the effect sizes across the broader group of studies.	Quality of evidence varied: moderate-quality (23 studies), 7 high-quality, 6 low- quality Most studies appear to deal with middle school pre-adolescents (10-12/13 year olds) or dealt with substance use or sexual health (not PSEWB).
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: (see table)		**Hi-Level Findings:** Adolescent development emerged as the most frequently targeted topic; 52.8% of the studies targeted this topic. Healthy life skills was the second most frequently targeted topic; 47.2% of studies included program elements targeting this topic. 27 studies (75%) reported a significant effect on the specified adulthood preparation behavioral outcomes, including healthy life skills (n = 2), sexual risk behaviors (n = 6), educational and career success (n = 7), healthy relationships (n = 4), financial literacy (n = 1), parent–child communication (n = 6), and adolescent development (n = 1). Behavioral outcomes showing significant effects for risk behaviors include alcohol, tobacco, and other drug use (n = 9) and risky sexual behaviors (n = 6).		
Intervention Type/Name/Df--**Overall:** Adulthood preparation training for adolescents that focused on (1) adolescent development, (2) educational and career success, (3) financial literacy, (4) healthy life skills, (5) healthy relationships, and (6) parent–child communication. **Outcome:** Behavioral outcomes including (1) violence perpetration and victimization, (2) substance use, and (3) risky sexual behaviors. Other measures were related to job skills and outcomes, education skills and outcomes, financial management, and parent–child relationship and communication measures.	**Databases searched for review:** PubMed, EBSCO Discovery Service, Education Resources Information Center, Web of Science, PsycINFO	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see table)	**Review inclusion** criteria—Focus on study methodology: Studies eligible for inclusion must (1) be published in English in an independent, peer- reviewed journal; (2) be conducted in developed, English speaking countries; (3) have implemented an intervention that addressed at least 1 of the 6 APS areas, delivered in an in-person setting; (4) have included youths at the 5th- through 12th-grade levels or aged 10 to 18 years at some point during intervention implementation; (5) have included an evaluation component with a comparison group and baseline and follow-up measures; (6) have included behavioral measures as outcomes; and (7) have reported statistical significance levels for the behavioral outcome measures.			

Outcomes examined **overall—include all but highlight PSEWB outcomes**: Behavioral outcomes including (1) violence perpetration and victimization, (2) substance use, and (3) risky sexual behaviors. Other measures were related to job skills and outcomes, education skills and outcomes, financial management, and parent–child relationship and communication measures.	**Review exclusion** criteria—Focus on study methodology: Studies were excluded if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see table)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured: N/A**				
Setting(s): Primarily schools **Country(ies): Developed, English-speaking countries** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Family, Individual				

TEEN SPECIFIC FINDINGS

AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Campbell-Heider et al., 2009	12-16	Teen Club plus Positive Adolescent Life Skills (PALS)	Because of small sample size (16), no significant findings were observed.	
Donohue et al., 2005	High school students	Summer Business Institute (SBI)	Financial management participants demonstrated significantly higher scores in financial management skills ($p<0.001$), and ability to manage insurance ($p<0.001$) compared with the job social skills participants. Job social skills participants demonstrated significantly higher scores in job interviewing skills ($p<0.001$), ability to interact professionally with others at work ($p<0.001$), and ability to take initiative at work ($p<0.001$), compared with the financial management participants.	
Ferrer-Wreder et al., 2010	7th to 9th grade students	LST plus TimeWise	No drug use differences between the groups. Intervention group had higher anxiety management skills ($p=0.051$) than the comparison group.	
Greeson et al., 2015	17 year olds	LST of Los Angeles	No significant differences between the control and intervention groups.	
Li et al., 2002	Low-income parents and their 12-16 year old children.	Informed Parents and Children Together (imPACT)	Parents in the control group had a lower concordance between their understanding of their children's behavior and their children's reported behavior ($p<0.05$), whereas the parents in the intervention did not.	
Litrownik et al., 2000	Parents and their adolescent children	Sembrando Salud (Sowing Health)	Intervention families had higher reports of parent-child communication ($p<0.05$).	
Millenky et al., 2014	High school youth who have dropped out of high school	National Guard Youth Challenge Program (NGYCP)	Intervention participants were more likely to have obtained a high school diploma or GED ($p<0.01$); earned at least some college credit ($p<0.01$); been employed for a greater number of months with higher earnings in the past year ($p<0.01$); and more likely to be overweight ($p<0.05$).	
Miller et al., 2012	High school male athletes	Coaching Boys into Men (CBIM)	No statistically significant differences in participants and control in dating violence perpetration or bystander behavior.	
Tebes et al., 2007	Middle- and high-school aged adolescents (mean of 15 years)	Positive Youth Development Collaboration (PYDC)	One year after the intervention, intervention participants had significantly lower increases in use of alcohol ($p=0.029$), marijuana ($p<0.001$), other drugs ($p<0.001$), and any drug ($p<0.001$) than the control group.	

Wang et al., 2014	10th grade students and their parents	Baharnian Focus on Older Youth (BFOOY) plus Caribbean Informed Parents and Children Together (CimPACT)	At six months post-interventions BFOOY participants (in all 3 cohorts) had significantly higher condom skills than students in the standard health education ($p<0.001$). Participants in the BFOOY + CimPACT had significantly higher parent-adolescent sexual risk communication than participants in the BFOOY and standard health education groups at 12 months ($p<0.05$) and 18 months ($p<0.05$).	
Wolfe et al., 2003	14-16 year olds	Youth Relationships Project (YRP)	No significant differences in behavioral outcomes among the intervention and control groups in the final sample. While not statistically significant, over the 2 years of the study, intervention participants were less physically abusive toward their dating partners and reported less victimization.	
Wolfe et al., 2009; Wolfe et al., 2012	14-15 year olds	Fourth R	The intervention group had significantly lower rates of physical dating violence than the control group ($p=0.05$). Among a sub sample of 196 9th grade students, intervention participants were more than twice as likely to demonstrate negotiation skills ($p<0.05$), and four times more likely to resist peer pressure ($p<0.05$) than the control participants.	

8. Catalano RF, Skinner ML, Alvarado G, Kapungu C, Reavley N, Patton GC, et al. Positive Youth Development Programs in Low- and Middle-Income Countries: A Conceptual Framework and Systematic Review of Efficacy. Journal of Adolescent Health [Internet]. 2019 July [cited 2019 July 26]; 65(1):15-31. Available from: https://www.ncbi.nlm.nih.gov/pubmed/31010725				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 10-29 years of age	**Date range for review:** 1990-mid 2016	**# of studies included**: 94	Most systematic reviews start with a single outcome of interest or a relationship between a class of interventions and a single outcome (e.g., family-oriented programs designed to prevent violence). For this review, the search terms used to identify different PYD constructs were many and varied; a large developmental period was covered (i.e., childhood, adolescence, and young adulthood); and diverse types of interventions across a broad set of outcomes were included. As a result of this intentionally broad scope, a large number of titles were retrieved and screened. The number and complexity of the search terms may have resulted in missing some relevant studies. Besides the limitations encountered in conducting the review itself, there are limitations in the interpretation of results founding these evaluations. In most cases, non-significant results were reported along with significant ones, but it is possible that some intended effects were found to be not significant but not reported, leading to an overly positive impression of the program. Program descriptions are limited to what was available in reports and publications, making it impossible to make stronger statements about which program features or characteristics lead to positive results.	The evidence we did find supports using PYD approaches with vulnerable or underserved populations to reduce disparities in assets, agency, contribution, and enabling environments. This suggests that when disparities in PYD constructs are narrowed, disparities in positive youth outcomes such as income and health can also be reduced.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: See table below.		**Hi-Level Findings:** Sixty percent of the 35 programs with rigorous evaluations demonstrated positive effects on behaviors, including substance use and risky sexual activity, and/or more distal developmental outcomes, such as employment and health indicators. There is promising evidence that PYD programs can be effective in LMICs; however, more rigorous examination with long-term follow-up is required to establish if these programs offer benefits similar to those seen in higher income countries.		
Intervention Overall: PYD, or Positive Youth Development[3]	**Databases searched for review:** Scopus and PubMed. For the gray literature, targeted searches of knowledge repository Web sites hosted by international agencies ,including the U.K. Department for International Development, the United Nations, the Inter-American Development Bank, and the World Bank.	**Adolescent-Specific Findings:** School curricula delivered in weekly sessions by trained school or project staff demonstrated some success in improving knowledge, attitudes, and soft skills. These programs usually included facilitated interactions and activities to support peer-to-peer involvement. The programs with rigorous evaluations, the programs that intentionally targeted several related positive youth outcomes are the most promising for larger scale implementations. Many of these programs encouraged youth engagement in the implementation of the program through creating groups, participating in decisions about topics and activities within the programs and through providing peer support. Direct involvement of young people in developing new programs was less evident, but there is growing evidence that youth involvement in every level of decision-making could improve program outcomes.		
Intervention examined for 13-18 year-olds or equivalent (specify): See table below.	**Review inclusion criteria**: (1) be published between 1990 and mid-2016; (2) be written in English, Spanish, or French; (3) include an evaluation in an LMIC; and (4)target youth between 10 and 29 years of age. The program had to address more than one PYD constructor address one PYD construct across multiple socialization do-mains (e.g., home, school, and peers).			
Outcomes overall—include all but highlight PSEWB outcomes: Improve one or more specific positive youth outcomes, such as education, employment, or health.[4]	**Review exclusion**: See above.			
Outcomes for 13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes: See table below.	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes for Social/built environments and/or people surrounding 13-18 year-olds (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): school **Country(ies):** low- and middle-income countries (LMICs) **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** school				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Jegannathan et al., 2014	Secondary school	Life Skills Training for Suicide Prevention	Boys with high-risk behavior improved on relationships, **purpose in life, and life skills** Girls improved **relationships,** health maintenance, and **life skills**	
Ekhtiari et al., 2012	High School	Violence Prevention, Life skills training: specific to domestic violence with focus groups for girls, training for school counselors in prevention and facilitating parent involvement	**Reduced favorable attitudes toward domestic violence** Improved violence preventive behaviors, **communication strategies related to domestic violence** among girls	
Srikala and Kishore, 2010	14-16 year-old youth	Life Skills for Mental Health, Life skills training in school	Improved **self-esteem, perceived coping**, adjustment in school and with teachers[5], and **prosocial behavior**	
Rotheram-Borus et al., 2012	13-21	Vocational training with HIV prevention for Ugandan youth	Reduced delinquent behaviors and improved employment, quality of life, and social support	
Amin et al., 2016	12-18 year old girls in Bangladesh	PYD-based educational support delivered in four versions: tutoring, gender awareness, livelihood skills, and community engagement.[6]	Reduced child marriage, increased SRH knowledge. Increased school attendance, private tutors, experience in working for pay(gender awareness and livelihoods interventions),**indicators of social freedoms and reduced harassment outside of home(gender awareness and education interventions)**	
Araya et al., 2013	13-15 year olds	10 group sessions covering coping with thoughts and emotions and problem-solving. Booster sessions at 2and 7 months after last session	There was no evidence of any clinically important improvement/difference in depressive symptoms.	

9. Dray J, Bowman J, Campbell E, Freund M, Wolfenden L, Hodder RK, et al. Systematic Review of Universal Resilience-Focused Interventions Targeting Child and Adolescent Mental Health in the School Setting. Journal of the American Academy of Child and Adolescent Psychiatry [Internet]. 2017 Oct; 56(10):813-824. Available from: https://www.ncbi.nlm.nih.gov/pubmed/28942803				
FOCUS OF REVIEW	*SR METHODS*	*RELEVANT FINDINGS*	*SYSTEMATIC REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 5-18 years	**Date range for review:** 1995-2015	**# of studies included**: 49	▪ Insufficient number of trials in some subgroups, thus precluding completion of all meta-analyses for subgroups specified a priori. ▪ Number of trials reporting adequate data for meta-analyses varied by outcome and subgroup. Research suggests that the inclusion of 4 or fewer studies in random effects meta-analysis may result in imprecise estimations of between-study variance. ▪ Risk of bias of included studies was rated high overall due to 2 key methodological limitations, namely, lack of blinding of key study personnel or participants, and common use of self-report outcome measures. Because of the nature of universal, school- based intervention trials, such study qualities may not easily be modified to reduce bias. ▪ Heterogeneity remained high for the outcomes of depressive symptoms and anxiety symptoms. ▪ It was not possible to test whether the interventions affected resilience per se, as very few trials also provided a measure of levels of the resilience protective factors targeted within the interventions. ▪ The quality of evidence for all mental health problem outcomes, except depressive symptoms, was downgraded to "moderate" because of methodological limitations; the quality of evidence for depressive symptoms was downgraded to "low" because of methodological limitations and high probability of publication bias based on visual inspection of the funnel plot.	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Adolescent Trials (11-18 Years)		**Hi-Level Findings:** The most promise is for using universal resilience-focused interventions at least for **short-term reductions in depressive and anxiety symptoms** for children and adolescents, particularly if a cognitive-behavioral therapy based approach is used.		
Intervention Overall: Included trials assessed interventions that addressed at least 3 internal resilience protective factors (see outcomes).	**Databases searched for review:** Medline, PsycINFO, ERIC, EMBASE, CINAHL, and the Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library), Google Scholar	**Adolescent-Specific Findings:** For adolescent trials, meta-analysis was possible for 5 of 7 outcomes and indicated a **significant overall intervention effect for internalizing problems only**. Results of the present review suggest some benefit of intervening both in childhood (5–10 years) and in adolescence (11–18 years), depending on the mental health outcome being targeted.		
Intervention examined for 13-18 year-olds or equivalent (specify): See above.	**Review inclusion criteria**: Included studies were randomized controlled trials (RCTs), including cluster randomized controlled trials (CRCTs) that compared a universal, school-based, resilience-focused intervention to a control or an alternative intervention			
Outcomes overall—include all but highlight PSEWB outcomes: Resilience protective factors: **depressive symptoms, anxiety symptoms,** hyperactivity, conduct problems, **internalizing problems, externalizing problems,** or general psychological distress.	**Review exclusion**: Interventions conducted in war zones were excluded. Otherwise, exclusion from the review was determined by a failure to meet the inclusion criteria detailed above.			
Outcomes for 13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes: **Depressive symptoms, anxiety symptoms**, hyperactivity, conduct problems, **internalizing problems, externalizing problems, general psychological distress**	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA, GRADE, Cochrane Handbook			
Outcomes for Social/built environments and/or people surrounding 13-18 year-olds (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): school **Country(ies):** 16 total, the largest contributors being from the U.S. and Australia **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** school				

10. Dunning DL, Griffiths K, Kuyken W, Crane C, Foulkes L, Parker J, Dalgleish T. The Effects of Mindfulness-Based Interventions on Cognition and Mental Health in Children and Adolescents – A Meta-Analysis of Randomized Controlled Trials. Journal of Child Psychology and Psychiatry [Internet]. 2018 Oct 22 [cited 2019 Aug 19]; 60(3):244-258. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/jcpp.12980				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Youth 18 years and younger.	**Date range for review:** Inception of databases utilized – Oct 2017	**# of studies included:** 33		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Meta-analysis aggregated samples with the aim of capturing data for youth 18 years and younger		**Hi-Level Findings:** All RCTs meta-analysis: Across all RCTs, those participants receiving an MBI improved significantly more than those receiving the control condition for the categories of Mindfulness and Executive Functions. The relative benefit of receiving MBIs for Attention was not significant. The categories of Depression and Anxiety/Stress showed significantly greater reductions after an MBI than after the control condition. MBIs did not have a significantly greater impact on changing Social Behavior. However, the category of Negative Behavior was significant, with MBI recipients showing a greater reduction in problems than those receiving the control condition. For statistically significant results, effect sizes ranged from small (.19) to small-to-moderate (.30). Individual, random effects meta-regressions showed that **age was a significant moderator of improvements in Executive Functions** ($Q = 5.60$, $p = .018$), with larger effect sizes in favor of the MBI associated with older age. For duration of MBI, total training hours was a significant moderator of a reduction in Negative Behavior ($Q = 7.30$, $p = .007$), with larger effect sizes related to more hours of training. Interestingly, Risk of bias score had no significant effect on any outcome category. Active Control RCTs: Data shows that those completing MBIs improved significantly more than those in active control interventions for Mindfulness (ES= 0.42, CI 0.16 to 0.67) and there was also a greater reduction in problems following an MBI than following the active control condition for the categories Depression and Anxiety/Stress. Effect sizes for significant results ranged from small (.18) to small-to-moderate (.42). There were no significant effects on changes in measures of Social Behavior, Negative Behavior, Executive Functions, or Attention. Age significantly moderated improvements in Negative Behavior ($Q = 5.27$, $p = .021$), with larger effect sizes associated with younger age. Risk of bias score significantly moderated measures of Mindfulness, with larger effect sizes related to greater risk of bias ($Q = 4.36$, $p = .037$). Total hours of MBI training had no significant effect on any outcome category.	As noted by author: When all RCTs are included in the analysis, almost all of the categories suffer from heterogeneity. The presence of heterogeneity is indicative of a lack of similarity between the included studies, in this case perhaps with regards to the methodology used (e.g., different control groups). For the 17 RCTs with active control groups, heterogeneity is less of an issue but is still significantly present in both of the behavioral categories. There was also evidence of publication bias in the sub-categories of Negative Behavior and Anxiety/Stress and in addition, for the RCTs with active control groups, in the Mindfulness category. It is important to highlight this as it suggests that the studies included here, in the aforementioned categories at least, are systematically different to unpublished studies. Specifically, there is an odds ratio of 2.3 for preferred publication of positive results (Dubben & Beck-Bornholdt, **2005**) suggesting that there may be an overestimation of the positive effects of MBIs. Even though RCTs are the gold standard research design, there are still relatively few mindfulness studies with children/adolescents that adopt them, testifying to how early along the intervention development trajectory MBIs for youth are. Another potential issue is that many studies choose to test new MBI protocols rather than run replication studies on established MBIs.	
Intervention Type/Name/Df--**Overall:** Mindfulness-Based Interventions (MBIs): Interventions aimed at augmenting mindfulness (defined as intentionally directing attention to present experiences with an attitude of curiosity and acceptance) through training. It is hypothesized that the enhancement of proximal skills trained by MBIs, such as nonjudgmental attention control, may have downstream effects on more distal outcomes such as improved behavior or reduced symptoms of psychopathology.	**Databases searched for review:** PubMed, ERIC, Cochrane, EMBASE, PsycINFO, Web of Science.	**Adolescent-Specific Findings:** (see above)		

Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (See above)	**Review inclusion** criteria—Focus on study methodology: Studies were included if the study fulfilled the following requirements: 1) Design must compare the effects of mindfulness against a control condition and participants were randomly assigned to either condition (RCT), 2) Participants of the study must be aged 18 years or younger, 3) the core of the mindfulness training program consisted of the following essential elements: present moment focus and decentering, the development of greater attentional and behavioral self-regulation, and engagement of the participant in sustained mindfulness meditation practice, 4) the intervention must also be delivered over more than one session by a trained mindfulness teacher and mindfulness practice must the central component of the intervention (rather than it being combined with other activities like mindful yoga, mindful coloring or a subcomponent of another intervention like Acceptance Commitment Therapy), and 5) the outcome measures must provide quantitative data from which effect sizes could be calculated.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Mindfulness, social behavior, negative behavior, depression, anxiety/stress, executive functions, attention	**Review exclusion** criteria—Focus on study methodology: Exclusion was based on a failure to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see above)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Not defined, face to face instruction by a trained mindfulness instructor **Country(ies):** Not defined **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Individual				

11. Enns J, Holmqvist M, Wener P, Halas G, Rothney J, Schultz A, et al. Mapping interventions that promote mental health in the general population: A scoping review of reviews. Preventive Medicine [Internet]. 2016 Jun [cited 2019 July 26]; 87:70-80. Available from: https://www.ncbi.nlm.nih.gov/pubmed/26896634				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Youth	**Date range for review:** 2004-2014	**# of studies included**: 39	Noted by author: Limitations of this scoping review include: ▪ The possibility that some relevant publications may not have been retrieved by the search strategy despite the use of systematic search methods and iterative steps to minimize omissions. ▪ The complexity of mental health and mental well-being concepts, and the overlap between promotion and prevention, were difficult to capture in a literature search, and as such, the results of this study may not be truly comprehensive. ▪ There was inevitable subjectivity in choosing inclusion criteria and considering whether articles were relevant for our review. ▪ Because we targeted studies in high-income countries, the findings may not be applicable to low- or middle-income countries	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: See table below.		**Hi-Level Findings**: Research describing interventions to improve mental health or prevent mental illness overwhelmingly focuses on treatment of existing illness or, to a lesser extent, on enhancing resilience. We believe that a focus on resilience, while important, should not distract from prevention efforts that involve creating environments that are more supportive of mental health. The impact of policy-level changes that meaningfully address determining factors like crime, poverty, social exclusion, and inequality needs to be studied. At present, there is very little in the academic literature that speaks to the impact of these changes on mental health outcomes		
Intervention Overall: Family and parenting interventions, interventions in indigenous populations, interventions in the workplace, interventions in older adults, interventions in the general public	**Databases searched for review:** PubMed, PsycINFO, Scopus, Cochrane CENTRAL, CINAHL and ER	**Adolescent-Specific Findings:** See above.		
Intervention examined for 13-18 year-olds or equivalent (specify): See table below.	**Review inclusion criteria**: Human subjects in Westernized countries (Canada, U.S.A., Europe, U.K., Australia and New Zealand) Published in English. Date range July 2004–July 2014. Research targeting the general population where no illness or pre-existing condition is identified. Methods describe a systematic review, meta-analysis, meta-synthesis, integrative analysis, scoping review, rapid review, or a systematic approach to data collection			
Outcomes overall—include all but highlight PSEWB outcomes: In studies assessing general well-being, the outcomes of interest include measures of interaction (social skills), cognitive abilities (problem solving skills), emotional maturity (coping ability and resilience), self-perception (self-esteem, confidence), academic performance, and risky behaviors (i.e., alcohol or substance abuse)	**Review exclusion**: Interventions aimed at treating a specific population because of a pre-existing condition or illness. Articles that did not report a rigorous methodology. Research focusing on theories or concepts supporting policy development, but not reporting mental health-related outcomes. Research focused on study design(e.g., methodology or protocol papers)			
Outcomes for 13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes: See table below.	**Guidance used to structure review (e.g., PRISMA, GRADE):** Arksey and O'Malley's scoping review methodology (Arksey and O'Malley, 2005) and Levac et al.'s methodology advancement (Levac et al., 2010) as guides for this scoping review of reviews.			
Outcomes for Social/built environments and/or people surrounding 13-18 year-olds (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): school, counseling centers, clinics, home, or via the internet **Country(ies):** Westernized countries (Canada, U.S., Europe, U.K., Australia, and New Zealand) **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** school, community, individual				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Calear and Christensen (2010)	Children/adol. Ages 5-19	CBT, psychoeducation, interpersonal therapy	Indicated programs, which targeted students exhibiting elevated levels of depression, were found to be the most effective. Teacher program leaders and the employment of attention control conditions were associated with fewer significant effects.	
Carnevale (2013)	Adolescents	CBT	Results indicated cognitive–behavioral universal prevention interventions can be effective on decreasing depressive symptomatology in adolescents. All reviewed studies were conducted in the school environment by professionals and/or school staff; however, only three of the programs implemented demonstrated adoption and sustainability	
O'Mara and Lind (2013)	Children/adolescents aged 6–18	mental health promotion, primary prevention of mental health disorders	A whole school approach focusing on mental health promotion rather than on mental illness prevention is effective in promoting child and youth mental health	
Beauregard (2014)	Children aged 5-17	classroom programs with a major component of art (visual arts, drama, music, dance/movement)	Cultural sensitivity is necessary both in intervention and study design. Overall, the results indicate that programmes containing a major component of creative expression can be beneficial to children but this needs to be considered with moderation. On one hand, significant improvement was found in hope, coping and resiliency, prosocial behaviours, self-esteem, impairment, emotional and behavioural problems (especially aggressive behaviours), construction of meaning and PTSD scores. On the other hand, some studies also reported no significant change in prosocial behaviours, self-esteem, emotional and behavioural problems, coping and resiliency of adolescent boys and PTSD (for a lack of a targeted intervention).	
Maxwell et al. (2008)	Aged 3-18	psychoeducation, CBT, interpersonal psychotherapy	In schools, sustained broad-based mental health promotion programmes combined with more targeted behavioural and cognitive-behavioural therapy (CBT) for those children with identifiable emotional wellbeing and mental health needs, offer evidence of a demonstrably effective approach. Early and brief intervention programmes which reduce waiting times for services appear promising approaches and seem to reduce the number of sessions a family require. There is a reasonably strong evidence base to support targeted work with both parents and children.	
Horowitz and Garber (2006)	Aged <21	CBT	Both selective and indicated prevention programs were more effective than universal programs at follow-up, even when the 2 studies with college students were excluded.	
Merry and Spence (2007)	Aged 5-19	psychoeducation, CBT, interpersonal psychotherapy	Positive results after intervention and at follow-up have been reported in a number of targeted studies, although an attempt to replicate findings in a school and in a primary care setting were unsuccessful. Most studies of universal interventions have shown a short-term effect that did not persist at follow-up.	
Stice et al. (2009)	Children and adolescents	CBT, psychoeducation	Larger effects emerged for programs targeting high-risk individuals, samples with more females, samples with older adolescents, programs with a shorter duration and with homework assignments, and programs delivered by professional interventionists. Results suggest that depression prevention efforts produce a higher yield if they incorporate factors associated with larger intervention effects (e.g., selective programs with a shorter duration that include homework).	

Christensen et al. (2010)	Aged 11-25	CBT, exercise, psychoeducation	The effectiveness of 18 anxiety and 26 depression studies addressing prevention in community programs were identified using systematic review methodology. Anxiety and depression symptoms were reduced in ~60% of the programs. Cognitive behavioral therapy programs were more common than other interventions and were consistently found to lower symptoms or prevent depression or anxiety. Automated or computerized interventions showed promise, with 60% of anxiety programs and 83% of depression programs yielding successful outcomes on at least one measure.	
Richardson et al. (2010)	Aged <18	computerized CBT	All studies reported reductions in clinical symptoms and also improvements in variables such as behaviour, self-esteem and cognitions. Satisfaction with treatment was moderate to high from both children and parents, though levels of drop out and non-completion were often high.	
Merry et al (2011)	Aged 5-19	psychological and educational strategies (e.g. CBT	There is some evidence from this review that targeted and universal depression prevention programmes may prevent the onset of depressive disorders compared with no intervention. However, allocation concealment is unclear in most studies, and there is heterogeneity in the findings. The persistence of findings suggests that this is real and not a placebo effect.	
Burkhardt and Brennan, 2012	Aged 11-18	physical activity interventions using recreational dance	There is some evidence to suggest that involvement in dance may have some positive outcomes on physical and psychosocial well-being.	
Arbesman et al., 2013a-Arbesman et al., 2013b	Aged 3-21	programs building social skills, promoting health/ preventing disorders, and focused on play, leisure or recreation activities	At the universal level, strong evidence exists for the effectiveness of occupation- and activity-based interventions in many areas, including programs that focus on social–emotional learning; schoolwide bullying prevention; and after-school, performing arts, and stress management activities. At the targeted level, strong evidence indicates that social and life skills programs are effective for children who are aggressive, have been rejected, and are teenage mothers. The evidence also is strong that children with intellectual impairments, developmental delays, and learning disabilities benefit from social skills programming and play, leisure, and recreational activities. Additionally, evidence of the effectiveness of social skills programs is strong for children requiring services at the intensive level (e.g., those with autism spectrum disorder, diagnosed mental illness, serious behavior disorders) to improve social behavior and self-management.	
Newton and Ciliska, 2006a-Newton and Ciliska, 2006b	Any age group or gender	social learning, CBT and psychoeducation (readings and reflection, journaling, internet discussion group)	No robust evidence exists on the impact of Internet-based prevention strategies on eating disordered symptomatology and on putative factors that contribute to eating disorder development.	

12. Feiss R, Dolinger SB, Merritt M, Reiche E, Martin K, Yanes JA, Thomas CM, Pangelinan M. A Systematic Review and Meta-Analysis of School-Based Stress, Anxiety, and Depression Prevention Programs for Adolescents. Journal of Youth and Adolescence [Internet]. 2019 July 26 [cited 2019 Aug 1]; (epub ahead of print). Available from: https://link.springer.com/article/10.1007%2Fs10964-019-01085-0				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Adolescents aged 11-18 years	**Date range for review:** 1990-2018	**# of studies included:** 42	As noted by author: Over half the studies (54.8%) had a high risk of bias due to lack of adherence to the intervention (e.g., high drop-out, lack of attendance, did not provide attendance information). Also, a high amount of heterogeneity among many of the studies. Author is clear to note that many schools, especially those in lower SES or rural areas, may not be capable of implementing such programs regardless of their efficacy.	Mix of targeted and universal interventions in meta-analysis were separated for comparison. (Could use to address universal-approach concerns) All but 2 studies were rated as high risk for overall bias, largely due to high risk of performance bias since blinding participants was difficult and self-report measures are commonly used.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Pooled meta-analysis, coded into either middle school (MS) or high school (HS).		**Hi-Level Findings:** Overall, this study found that programs aimed at reducing **depression and/or anxiety disorders** in adolescents are generally effective, however, programs for stress reduction are not. Program type influenced program efficacy for stress, anxiety, and depression.		
Intervention Type/Name/Df--**Overall:** All but 7 programs were traditional therapy programs (e.g., CBT-based, stress inoculation)	**Databases searched for review:** Academic Search Premiere, ERIC, PsycINFO, and PsycARTICLES.	**Adolescent-Specific Findings:** Stress: Overall, stress reduction interventions did not reduce stress symptoms compared to control groups. Targeted interventions did show greater reductions in stress than universal programs. Age could not be included in a stepwise regression as none of the 4 studies included MS participants. Anxiety: Anxiety reduction interventions significantly reduced anxiety symptoms compared to control groups. However no differences in anxiety symptoms were observed at 3-6 month follow-up for the 6 studies that included follow-up data. For universal interventions higher dose was associated with a greater reduction in anxiety. Depression: Depression interventions significantly reduced depressive symptoms compared to control groups, however in the 17 studies including 3-8 month follow-up no differences were observed at follow-up. Additionally, this reduction was moderated by a combination of program type, dose, race, and age group.		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Stress inoculation program, Learning to BREATH mindfulness program, traditional group therapy methods (e.g., CBT), alternative group therapy methods (e.g., meditation, holistic interventions),	**Review inclusion** criteria—Focus on study methodology: Studies included must assess a school-based mental health program in U.S. middle and high school settings aimed at reducing stress, depression/depressive symptoms, anxiety, or other internalizing mental health-related problems.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Measures of stress (4 of 42), anxiety (20 0f 42), and depression/depressive symptoms (38 of 42).	**Review exclusion** criteria—Focus on study methodology: Reviews, epidemiology articles, non-peer reviewed articles, and studies that omitted baseline and/or posttest scores were excluded.			

Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Perceived Stress Scale (PSS), State-Trait Anxiety Index (STAI) subscales, Youth Self-Report (YSR) depression scales, Children's Depression Inventory (CDI), Center for Epidemiological Studies Depression Scale (CES-D), Behavior Assessment System for Children (BASC) anxiety scales, Brief Symptom Inventory (BSI) anxiety and depression scales, Short Mood & Feeling questionnaire (SMFQ), Mood and Feeling Questionnaire (MFQ), Revised Children's Manifest Anxiety Scale (RCMAS), Screen for Child Anxiety Related Disorders (SCARED), Reynolds Adolescent Depression Scale (RADS)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools **Country(ies):** U.S **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Individual				

13. Gwyther K, Swann R, Cassey K, Purcell R, Rice SM. Developing Young Men's Wellbeing Through Community and School-based Programs: A Systematic Review. PLoS ONE [Internet]. 2019 May 20 [cited 2019 Aug 1]; 14(5):e0216955. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0216955				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: young males aged 12-25 years.	**Date range for review:** First year of database availability – 2018	**# of studies included**: 40 **Hi-Level Findings**: Male-targeted interventions may be more beneficial for young men[7] than gender-neutral programs; however, none of the studies incorporated masculine-specific theory. 100% of GSP and GTPs reported at least one positive effect. 69% of GNPs reported at least one positive effect. GTP: Each of the four GTPs reported some positive changes in participants post-program. The Council was the only GTP to report quantitative outcomes, with significant positive intervention effects observed for **school self-efficacy and future self-efficacy**. **For the Council, no changes were found for masculine ideology, relational aggression, or identity distress.** Comments from participants in the YMI, TRJ, and RWP suggest the programs were effective for **reducing anger, increasing self-reflection, and reshaping perception about 'being a man'**. GSP: All 7 male-specific interventions reported at least 1 beneficial outcome. HEYMAN reported increased **quality of life enjoyment and satisfaction** at post-program, ATLAS reported increased **psychological wellbeing** post-program, HBIP participants with initial body dissatisfaction showed a significant reduction in **negative affect** post-program (Stanford and McCabe's body image program also reported decreased negative affect as well as **increased self-esteem**), Participants in the OBBC saw significant improvements in **overall self-esteem** and **academic self-esteem**, ROC and Incolink found positive outcomes for **help-seeking outcomes** (ROC participants reported increased likelihood to seek help post-program and approximately 80% of participants in Incolink indicated **increased understanding of how to identify and seek help for problems in themselves and others**). GNP: in 9 GNPs with male-only samples, 8 reported **positive effects for at least one outcome**. Two outdoor adventure programs reported significant increase in **self-efficacy and cognitive autonomy**, and **emotional intelligence, intrapersonal skills, adaptability, and mood**. 1 sporting program (of 2) showed promising qualitative results where participants reported **increased competence**. The other sporting program reported significant quantitative intervention effects for **reduced depressive symptoms** following the intervention. For 1 eHealth intervention (of 2), significant short-term improvements in **depressive symptoms** and a long term intervention effect for **self-esteem** were observed. In the other, a preventative effect in **distress symptoms** (where the intervention group had a non-significant decrease in distress and the control showed a significant increase) was observed. One mindfulness intervention reported significant reductions in **anxiety symptoms** and **rumination.** One mentoring program conveyed positive qualitative outcomes, with participants self-reporting decreased aggression and increased motivation. The remaining 17 articles evaluated GNPs in mixed-gender samples. 7 programs found positive changes in mostly males. Two psychoeducational programs improved mental health, and self-efficacy and optimism. One mindfulness program and one community service program reported reduced negative affect. An emotional intelligence intervention reported increased emotional attention and clarity. A culturally-relevant eHealth program reported increased interest in diversity of contact. One sport program increased assertiveness.	As noted by author: The heterogeneity of study characteristics prevented a meta-analysis or the assessment of publication bias. Few studies used means of actually measuring masculine ideology (the author states there are now at least 16 validated scales on the subject). The majority of studies did not measure long-term follow-up. This pattern of short-term, one-off intervention evaluation results in a lack of effect replication and no evidence of program enhancement. Without repeating evaluations it cannot be determined whether programs are reliably effective.	This article did not provide individual study break down, making identifying age groups for each study difficult though it appears all involved males that were in our target demographic (mean and median age of sample were 15 and 15.5 respectively).
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Could not determine age of sample for each study, though the mean and median age for all study samples (8,290 participants) at the beginning of intervention is 15 and 15.5 respectively.	**Databases searched for review:** MEDLINE, Embase, PsycINFO, ERIC, and ERAD.			
Intervention Type/Name/Df--**Overall:** Gender-Transformative Programs (GTP), Gender-Sensitive Programs (GSP), Gender-Neutral Programs (GNP).				
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: GTP: Rock and Water Program (RWP), The Council for Boys and Young Men (The Council), Young Men Initiative (YMI), The Rite Journey (TRJ). GSP: Active Teen Leaders Avoiding Screen Time (ATLAS), Harnessing EHealth to enhance Young men's Mental health, Activity, and Nutrition (HEYMAN), Healthy Body Image Program (HBIP), unnamed body image education program by Stanford and McCabe (Stanford & McCabe, 2005), Reach Out Central (ROC), Incolink Life Skills Programme (ILSP), Outward Bound Bridging Course (OBBC) GNP: mentoring or community service, psychoeducation, physical activity or sport, eHealth interventions, outdoor adventure programs, mindfulness and meditation programs, emotional intelligence interventions, body image program.	**Review inclusion criteria—Focus on study methodology**: Articles were included if they evaluated an intervention or program with a general or at-risk[8] sample of young men (mean age between 12-25 years at beginning of intervention), and measured a psychological, psychosocial, masculinity, or educational outcome.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: GTP: school self-efficacy, future self-efficacy, relational aggression, identity distress, anger, self-reflection, perceptions about 'being a man'. GSP: quality of life enjoyment and satisfaction, psychological wellbeing, negative affect, self-esteem, academic self-esteem, help-seeking outcomes. GNP: self-efficacy and cognitive autonomy, emotional intelligence, intrapersonal skills, adaptability, mood, sense of competence, depressive symptoms, self-esteem, distress symptoms, anxiety symptoms and rumination, aggression, motivation, mental health, optimism, negative affect, emotional attention and clarity, assertiveness, mental health literacy, mental health prejudice.	**Review exclusion criteria—Focus on study methodology:** Articles were excluded if they 1) had an all-female sample 2) focused on youth offenders, clinical or out-patient samples 3) were case studies 4) used biological, medical, or supplementary interventions 5) assessed outcome variables related to reproductive health behaviors, partner violence, substance use, physical health, smoking and program feedback only.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (See above)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** GTP: Masculine ideology GNP: interest in diversity of contact				

Setting(s): Secondary school, community, university, online, mixed **Country(ies):** Majority OECD countries (specifically Australia and U.S.) **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Community, Individual		Adolescent-Specific Findings: (See above)		

14. Janouskova M, Tuskova E, Weissova A, Trancik P, Pasz J, Evans-Lacko S, Winkler P. Can video interventions be used to effectively destigmatize mental illness among young people? A systematic review. European Psychiatry [Internet]. 2017 Mar [cited 2019 July 26]; 41:1-9. Available from: https://www.ncbi.nlm.nih.gov/pubmed/28049074				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: students ages 13-25 years old	**Date range for review:** No exclusion based on date of publication	# of studies included: 23		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Secondary school students (13-18 years old) (Chan et al., 2009), Secondary school students (mean age 14.7 years old) (Esters et al., 1998), Secondary school students (13-17 years old) (Pinto-Foltz et al., 2011), Secondary school students (mean age 15.76 years old) (Saporito et al., 2011).		Hi-Level Findings: Video was found to be more effective than other interventions (e.g., face to face simulation of hallucinations). Social contact delivered via video intervention achieved similar effect to live intervention. Overall, video considered promising.	Not able to synthesize data meta-analytically because the studies showed substantial heterogeneity in terms of length and content of the video interventions, as well as in terms of tools to measure effectiveness of these interventions. Inclusion of studies reported in English only might have had further limited results. Also, data extraction and quality assessment was performed by one author for each of the studies only, so authors were not able to look at possible discrepancies and determine inter-rater reliability. However, authors involved in data extraction and quality assessment share a common workplace and all ambiguities were discussed instantly among them. None of the 23 studies conducted in a low- or middle-income country. All interventions occurred in schools.	By AH: Risk of selection and attrition bias was considerable, external validity not discussed, low or unrecorded response rates
Intervention Type/Name/Df--**Overall:** Video interventions aimed at reducing stigma towards people with mental illnesses (generally as part of a broader group of mass media interventions, educational interventions, school-based interventions, and anti-stigma interventions).	**Databases searched for review:** MEDLINE, ERIC, Academic Search Complete, Cochrane (trials), Cochrane (reviews), Open SIGLE (grey literature), Web of Knowledge, EMBASE, Health Management Information Consortium, PsycINFO, ProQuest, Social Policy & Practice, and WorldCat dissertation.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18-year-olds or equivalent (specify)**: Documentary intervention (one arm: education then documentary. Second arm: Documentary then education) (Chan et al., 2009), Education intervention (Esters et al., 1998), Live talk intervention (with education + direct contact) (Pinto-Foltz et al., 2011), Documentary intervention (with education) (Saporito et al., 2011)	**Review inclusion** criteria—Focus on study methodology: Studies included must assess school-based interventions including at least one video-based component and focused on mental illness or themes closely connected to mental health. Studies that included participants older or younger than the desired age range (13-25) were included if the mean age range of the sample was within the desired range. The intervention also had to aim at reducing stigma towards people with mental illness.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Coded outcomes of individual studies into 7 categories: knowledge about etiology, character of people having mental illness, and possible treatment; social distance; reported emotional reaction; perceived dangerousness; combination of the above mentioned dimensions (general attitudes); attitudes toward help seeking while having mental illness; outcomes measuring actual behaviour toward someone with mental illness.	**Review exclusion** criteria—Focus on study methodology: Studies were excluded if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18-year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see above)	Guidance used to structure review (e.g., PRISMA, GRADE): PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured: N/A**				

Setting(s): Video interventions were only delivered as part of educational interventions in school settings ***Country(ies): US, Europe, China, Australia*** ***State/region/locality(ies) (even within other countries):*** ***Level (e.g., national, community/neighborhood, school, family, work, recreation, OST): School***				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Chan et al., 2009	Secondary school students (13-18 years old)	Documentary intervention (one arm: education then documentary. Second arm: Documentary then education)	In the education-video group, there were significantly **positive effects on knowledge about etiology, character of people with mental illness and possible treatment** observed at post-test and follow-up when compared to the education control group. There were also significantly **positive effects observed on social distance** at post-test and follow-up when compared to the education-only control group. **Significant positive effects on general attitudes/attributes towards people with mental illness** were observed at post-test, but not at follow-up when compared to the education-only group. In the video-education group, **no significant effects were observed on knowledge about etiology, character of people with mental illness and possible treatment observed at post-test or follow-up when compared to the education-only control group.** There was a significantly positive effect observed on social distance at post-test when compared to the control, but this effect was lost at follow-up. No significant effects on general attitudes/attributes towards people with mental illness were observed at post-test or follow-up when compared to the control group.	
Esters et al., 1998	Secondary school students (mean age 14.7 years old)	Education intervention	Significantly **positive effects** at post-test and follow-up on knowledge about **etiology, character of people with mental illness and possible treatment** when compared with control. Significantly positive effects at post-test and follow-up on attitudes towards help-seeking when compared with control.	
Pinto-Foltz et al., 2011	Secondary school students (13-17 years old)	Live talk intervention (with education + direct contact)	**No significant positive effect on knowledge about etiology, character of people with mental illness and possible treatment** at post-test when compared with control but significant positive effects were found at follow-up when compared to control. No reported significant positive effect on reported emotional reaction to mental illness at post-test or follow-up when compared to control group.	Author indicates the lack of statistical significance in outcome in "reported emotional reaction to mental illness" (in the individual study labeled as "reducing mental illness stigma) was likely due to a lack of power to detect an effect. Sample size to adequately power the study was n=1000.
Saporito et al., 2011	Secondary school students (mean age 15.76 years old)	Documentary intervention (with education)	**No significant positive effect on knowledge about etiology, character of people with mental illness and possible treatment** (no follow-up data collected) when compared to control. **Significant positive effects** recorded on **general attitudes/attributes towards people with mental illness** at post-test (no follow-up data collected) when compared to control. Mixed findings across measures of attitudes towards help-seeking across multiple measures (two significant positive effects, one non-significant effect) when compared to control group at post-test (no follow-up collected). No significant effect on actual behavior was observed at post-test (no follow-up data collected).	

15. Kennedy H, DeChants J, Bender K, Anyon Y. More than Data Collectors: A Systematic Review of the Environmental Outcomes of Youth Inquiry Approaches in the United States. American Journal of Community Psychology [Internet]. 2019 Mar 6 [cited 2019 Aug 20]; 63(1-2):208-226. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/ajcp.12321				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: children and youth 25 years and younger, staff and structures involved in youth inquiry.	**Date range for review:** 1995-2015	**# of studies included:** 36 documented environmental outcomes, representing 57.1% of total sample of youth inquiry studies.	As noted by author: This study was limited to peer-reviewed studies and did not include any gray literature or book chapters, excluding potentially relevant work reported in non-peer reviewed sources, such as reports on agency websites. The exclusion of other dissemination mechanisms likely resulted in an underreporting of environmental outcomes associated with youth inquiry approaches. Authors did not assess risk of bias in studies included in review. Given the lack of detailed information about analytical approaches in many manuscripts, authors were only able to group studies by research design and were therefore unable to draw more detailed conclusions or highlight some of the innovative approaches in the sample. This may have skewed results, as studies that provided more systematic descriptions of their methods may have been different from those who do not in ways that we could not measure.	Studies used mostly qualitative methods
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: N/A	**Databases searched for review:** PubMed, ERIC, Social Service Abstracts, PsycINFO.	**Hi-Level Findings:** Studies of youth inquity approaches in the U.S. have reported positive, and in many cases, lasting, changes in their environments, including schools, neighborhoods, and communities. Adults learned to value youth as experts in their own lives and viewed them as important stakeholders in school and community-level decision-making. Five articles reported that adults had an increased understanding of the experiences and needs of **diverse youth** because of the project; specifically, adults were more willing to engage in diversity-related discussions with young people at school. Relationships between students and teachers were improved and adults described engaging in more reflexivity regarding power dynamics between youth and adults. Several studies reported formalizing opportunities for youth voice into school and community settings. Research-related benefits included a wide range of improvements to the process of doing research and the quality of the information uncovered. Partnering with youth for research also challenged dominant research paradigms, integrating activism rather than only prioritizing objectivity and changing perspectives of research as something that is done to youth to something that is done with them. Fourteen percent of studies reported that one or more policies had been adopted as a result of engaging with youth in inquiry, at the school district level, city-level (policy changes: including the addition of two bus routes to facilitate easy access to recreation facilities.		
Intervention Type/Name/Df--**Overall:** Youth inquiry approaches like YPAR, youth organizing, student voice. Youth inquiry approaches were defined as an element of organized groups where youth participants met regularly and had a common purpose.	**Review inclusion** criteria—Focus on study methodology: Studies must be empirical research published in peer-reviewed journals and conducted in the United States. Studies must include project participants of children or youth 25 years or younger. Studies must also involve an inquiry-based process that involved youth in data collection, data analysis, data interpretation, or use of knowledge to improve lives. Studies must additionally assess outcomes related to the experiences, outcomes, or impact of youth inquiry on youth participants or their surrounding environment.	**Adolescent-Specific Findings (13-18-year-olds):** NA		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see above)	**Review exclusion** criteria—Focus on study methodology: Studies that only included youth aged 18-25 were excluded if they consisted only of undergraduate or graduate students. Youth inquiry approaches that reported youth participants as solely receiving knowledge or instruction were excluded. Otherwise, studies were excluded from the review based on a failure to meet the inclusion criteria detailed above.			

Outcomes examined **overall—include all but highlight PSEWB outcomes**: Practitioner growth (i.e., adults changed their attitudes, perspectives, understanding and behaviors).	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined for **13-18-year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**:				
Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds (Nation, Community, Interpersonal) –** Changes to practitioners, policies, programs, research, and peer group norms. **Specify outcome and for whom/what it is measured: Peer group norms (i.e., increase in knowledge or change in attitudes about health related topics)**; program development or improvement (i.e., the creation of new programs, enrichment of services, spaces, or funding for services); research benefits (i.e., improvements in recruitment, data quality, interpretation of results, or perspective gained); passage of policy at school, city, or state level.				
Setting(s): No setting restriction **Country(ies):** U.S. **State/region/locality(ies) (even within other countries): Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Community, Interpersonal, School				

16. Klingbeil DA, Renshaw T. Mindfulness-Based Interventions for Teachers: A Meta-Analysis of the Emerging Evidence-Base. PsyArXiv [Internet]. 2018 Oct 1 [cited 2019 Aug 15]; PrePrint. Available from: https://psyarxiv.com/589jq/				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All age/developmental groups included. K-12 teachers	**Date range:** Inception of databases searched - April 2018	**# of studies included overall:** 29	Most studies used small sample sizes. The majority of studies relied on self-report measures, which are susceptible to response bias. None of the studies compared the effects of MBIs with an alternative treatment approach. The characteristics and components of the MBIs included within our analysis varied widely. The majority of MBIs also included several "secondary" or non- mindfulness components within the treatment package, yet few provided a detailed operationalization of all intervention components beyond mindfulness.	Visual and statistical evidence of publication bias suggested the overall effect estimate may be positively biased.
Age/developmental group included relevant to H.S. aged teens ages 13-18 - specify by age if author doesn't aggregate by relevant age group. Only two studies appeared to measure outcomes of MBI for secondary school teachers.[9]	**Databases searched:** PyscINFO, ERIC, PubMed, Academic Search Complete, ProQuest Dissertation and Theses (abstracts only)	**High-level findings:** The average overall treatment effect, g = .601, 95% CI [.418, .784], was statistically significant (p < .001). On the first-order primary outcome of psychological wellbeing (k = 23, n = 1,248), MBIs were associated with a small-to-medium treatment effect, g = .431, 95% CI [.254, .608]. On the first-order primary outcome of psychological distress (k = 27, n = 1,469), MBIs had a medium treatment effect, g = .551, 95% CI [.368, .734]. The effects of MBIs on psychological wellbeing and psychological distress were statistically significant (p < .001). Results for the second-order primary outcome of classroom climate and teaching practices were not statistically significant. Treatment effects were smaller in studies where MBIs were delivered by the program developers (g = .511) compared to other trained staff (g = .706). Finally, increasing the dose of the intervention beyond the sample average (M = 24.421 hours) had a negligible impact (b = -.011) on the observed effect size. Overall effects for teachers (g = .601) were similar to findings in previous meta-analytic reviews of MBIs with healthy adult populations, and associated with larger effects than MBIs targeting health care professionals or youth.		
Intervention(s) Type/Name--Overall Mindfulness-Based Interventions.	**Review inclusion criteria:** Studies included must include the provision of a MBI with teachers who worked in a pre-K-12 setting (determination of the "primary" nature of mindfulness training within a given intervention was deferred to the self-identification of such by the author). No inclusion criteria was set regarding types of outcome variables examined, geographical or cultural restrictions, or language of publication.	**13-18 year-old (or similar) Teen specific findings: (or see Teen Table below).** Findings were not provided by age group or school type.		

Intervention(s) Type/Name--examined for 13-18 year-olds or equivalent (specify). Not available.	**Review exclusion criteria:** Studies that incorporated other meditation exercises without training mindfulness and interventions that used mindfulness as secondary components were excluded. Studies of MBI targeting post-secondary students enrolled in teaching programs, educators working in post-secondary institutions, and studies that included teachers within broader adult samples were also excluded. Non-intervention studies of mindfulness or non-empirical articles were excluded. Studies using single-case designs, purely qualitative methods, and pre-post designs with no control group were also excluded.			
Outcomes examined overall --include all but highlight PSWEB outcomes. Psychological wellbeing; psychological distress; classroom climate and teaching practices	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined for 13-18 year-olds or equivalent—include all but highlight PSEWB. Not applicable				
Outcomes examined for social/built/structural environments and/or people surrounding 13-18 year-olds (global/cultural, national, community, interpersonal level)--Specify outcome and for whom it is measured. School climate (teacher well-being)				
Setting(s): All school-based **Country(ies):** **State/region/locality(ies) (even within other countries):** **Level (e.g., global/cultural, national, community, interpersonal):** School				

17. Mansfield L, Kay T, Meads C, Grigsby-Duffy L, Lane J, John A, et al. Sport and Dance Interventions for Healthy Young People (15-24 Years) to Promote Subjective Well-Being: A Systematic Review. BMJ Open [Internet]. 2018 July 15 [cited 2019 Aug 7]; 8(7):e020959. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6082460/				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Healthy (no health condition diagnosed by a health professional) young people aged 15-24 years old	**Date range for review:** 2006 – Sep 2016	**# of studies included:** 11		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Adolescents aged 13-18 (Amorose et al., 2009), Ages 18-20 (Kanojia et al., 2013), Ages 17-22 (Kim & Kim, 2007), Ages 18-25 (Li et al., 2015), Ages 13-19 (Lindgren et al., 2011), Grades 11 and 12 (Noggle et al., 2012), Ages 15-19 (Staiano et al., 2013).		**Hi-Level Findings:** Published literature suggests meditative physical activity (yoga and Baduanjin Qigong) and group-based or peer-supported sport and dance has some potential to improve subjective well-being. Grey literature suggests sports and dance improve subjective well-being but identify negative feelings of competency and capability. The amount and quality of published evidence on sport and dance interventions to enhance subjective well-being is low. Better designed studies are needed.	As noted by author: Due to clinical heterogeneity between studies, meta-analysis was not appropriate.	
Intervention Type/Name/Df--**Overall:** Any sport or dance intervention.	**Databases searched for review:** PsycINFO, Ovid MEDLINE, ERIC, Web of Science (Arts and Humanities Citation Index, Social Science and Science Citation Index), SCOPUS, PILOTS, CINAHL, SPORTDiscus, International Index to Performing Arts.	**Adolescent-Specific Findings:** (see below)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Volleyball (Amorose et al., 2009), Yoga (Kanojia et al., 2013), Aerobic exercise, body conditioning, hip-hop dancing, and ice skating (Kim & Kim, 2007), Baduanjin exercise (Li et al., 2015), Empowerment-based exercise intervention program (Lindgren et al., 2011), Kripalu Yoga (Noggle et al., 2012), Exergame (EG) intervention (Staiano et al., 2013).	**Review inclusion** criteria—Focus on study methodology: Any comparative studies investigating any form of sport or dance compared with no sport or dance, usual routine or comparing pretest and post-test scores in healthy young people aged 15-24 years and measuring any form of subjective well-being were included.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: any subjective well-being outcome using any recognized method or measure.	**Review exclusion** criteria—Focus on study methodology: Studies that included participants with a health condition, included participants who were paid professionals or elite athletes, included participants in clinically based sport and dance interventions were excluded. Studies that included clinical sport-based or dance therapy, sport and dance for clinical procedures (e.g., surgery, medical tests, diagnostics), or walking as interventions were excluded. Discussion articles, commentaries, or opinion pieces not presenting empirical or theoretical research were excluded.			

Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Sport competence (5-item subscale of the Intrinsic Motivation Inventory), need for autonomy (6-item scale: Hollembeak & Amorose), need for relatedness (10-item Richer and Vallerand's Feelings of Relatedness Scale), self-esteem (10-item Rosenberg's Self-Esteem Scale), burnout (15-item Athlete Burnout Questionnaire) (Amorose et al., 2009), 16-item Anger questionnaire, 40-item trait anxiety questionnaire, 10-item depression questionnaire, 50-item subjective well-being questionnaire (Kanojia et al., 2013), mood (Subjective Exercise Experiences Scale) (Kim & Kim, 2007), Self-esteem (Self-esteem Scale), mood/mindfulness (Profile of Mood States scale), quality of life, stress (Perceived Stress Scale), Self-rated symptom intensity (SCL-90 scale) (Li et al., 2015), self-efficacy (10-item General Self-efficacy Scale), Behavior changes (Social Barriers to Exercise Self-efficacy Questionnaire) (Lindgren et al., 2011), mood (POMS-short form), affect (Positive and Negative Affect Schedule for Children), stress (PSS), positive psychology (Inventory of Positive Psychological Attitudes), Resilience (Resilience Scale), anger (State Trait Anger Expression Inventory-2TM), mindfulness (Child Acceptance Mindfulness Measure) (Noggle et al., 2012), self-efficacy (Exercise Confidence Survey), self-esteem (Rosenberg Self-Esteem Scale), peer support (Friendship Quality Questionnaire) (Staiano et al., 2013).	**Guidance used to structure review (e.g., PRISMA, GRADE):** What Works Centre for Wellbeing methods guide, GRADE			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): programmes of sport and dance **Country(ies): UK-based programmes (but some came from U.S.)** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST): recreation**				

TEEN-SPECIFIC FINDINGS

AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Amorose et al., 2009	Adolescents aged 13-18	Volleyball	The extent to which athletes' psychological needs are satisfied during a season are linked to increases and decreases in their positive and negative well-being	All females, 90% Caucasian
Kim & Kim, 2007	Ages 17-22	Aerobic exercise, body conditioning, hip-hop dancing, and ice skating	aerobics and hip-hop rated positive wellbeing higher than body conditioning and ice skating group; lower psychological distress	
Noggle et al., 2012	Grades 11 and 12	Kripalu Yoga	**Not causal** due to small samples size, but suggests benefits in psychosocial wellbeing	92.2% Caucasian in rural western Massachusetts
Staiano et al., 2013	Ages 15-19	Exergame (EG) intervention		**Sample is African-American overweight and obese students** from a urban public high school

18. Marx R, Tanner-Smith EE, Davison CM, Ufholz LA, Freeman J, Shankar R, et al. Later school start times for supporting the education, health, and well-being of high school students. Cochrane Database of Systematic Reviews [Interview]. 2017 July 3 [cited 2019 July 26]. Available from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD009467.pub2/full				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 13-19 year olds	**Date range for review:** Inception of databases included – February 2016	**# of studies included:** 11		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Grade 9 to 12 students (Brown, 2011; Wahlstrom, 2002)		**Hi-Level Findings:** Preliminary evidence from the included studies indicated a potential association between later school start times and academic and psychosocial outcomes, but quality and comparability of these data were low and often precluded quantitative synthesis. Four studies examined the association between later school start times and academic outcomes, reporting mixed results. Six studies examined effects on total amount of sleep and reported significant, positive relationships between later school start times and amount of sleep. One study provided information concerning mental health outcomes, reporting an association between decreased depressive symptoms and later school start times. There were mixed results for the association between later school start times and absenteeism. Three studies reported mixed results concerning the association between later school start times and student alertness. There was limited indication of potential adverse effects on logistics, as the qualitative portions of one study reported less interaction between parents and children, and another reported staffing and scheduling difficulties. Because of the insufficient evidence, no firm conclusions concerning adverse effects can be made at this time.	As noted by author: Limited evidence base prevented determining effects of later start times with any confidence. Because of low methodological standards, the variety of particular interventions and the variation of outcomes measured, meta-analysis was not possible for most of the recorded outcomes, many studies did not report sufficient data needed to calculate effect sizes, weak internal validity of this literature (presence of only one cluster RCT) prevents strong causal inferences about the effects of later school start times on high school student's outcome.	
Intervention Type/Name/Df--**Overall:** Review included interventions that involved a comparison between two or more different school start times. "Late Start" interventions purposely moved school start times later and then compared outcomes obtained under the previous or another earlier start times. Also included studies that compared outcomes associated with start times at different, but matched, schools (different shifts of students within the same school)	**Databases searched for review:** Cochrane Central Register, Cochrane Database of SRs, MEDLINE Ovid, EMBASE Ovid, PsycINFO, Academic Search Complete EBSCO, CINAHL EBSCO, Education Full Text EBSCO, Educator's complete reference, ERIC ProQuest, GlobalHealth CAB Health, Sociological Abstracts ProQuest, JSTOR, British Education Index, Australian Education Index, Dissertations and Theses ProQuest, Evidence for Policy and Practice Information and Coordinating Centre Review Databases.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: "Late Start" (Brown, 2011), Delayed school start time from 7:15am to 8:45am (Wahlstrom, 2002).	**Review inclusion** criteria—Focus on study methodology: Randomized controlled trails (RCTs) (including cluster-randomized controlled trails or randomized cross-over trials) and non-randomized designs such as interrupted time series studies (ITSs) with at least three pre- and post-intervention measurements, controlled before-and-after studies (CBAs), and non-randomized quasi-experimental controlled trials (including potentially cluster and/or cross-over trials) that assessed the impact of a delayed school start time intervention on adolescents aged 13-19 were eligible for inclusion in this review.			

Outcomes examined **overall—include all but highlight PSEWB outcomes**: Mental health indicators including, for example, measures of stress, anxiety, feelings of isolation or exclusion, depression or suicidal ideation. Student truancy or attendance. Teacher or self-reported student alertness. ■ Student academic outcomes, measured, for example, by locally relevant standardized test scores and course grades, midterm and final exam results, and graduation records. ■ Outcomes related to amount or quality of sleep for students, often referred to as total sleep time (TST) for students. ■ Student sleepiness or fatigue. Adverse outcomes or possible harms: ■ Increased transportation costs for students, families, or schools. ■ Decreased student supervision outside school time. ■ Decreased time spent with family. ■ Issues with child care and before- and after-school care for younger siblings. ■ Decreases in enrollment in extracurricular and athletic activities. ■ Polarizing or increased conflicts within the school community through this issue. ■ Difficulties for school staff (making medical appointments, attending professional development workshops, etc.). ■ Increased costs and difficulties obtaining substitute teachers. Intermediate outcomes included: **Secondary outcomes include:** ■ Outcomes related to health behaviors (e.g. diet, exercise, tobacco use, alcohol or drug use, unsafe sexual practices). ■ Health and safety indicators (e.g. vehicular accidents, falls or other accidents, abductions, transportation issues). ■ Social outcomes (e.g. changes in social supports, peer relations, participation in extracurricular activities, student employment, discipline referrals at school). ■ Family outcomes (e.g. changes in the supervision of children/adolescents and child care, family communication and dynamics, routines, roles). ■ School outcomes (e.g. changes in registration numbers, school climate or discipline referrals). ■ Community outcomes (e.g. reactions from local businesses, feelings of safety on neighborhood streets).	**Review exclusion** criteria—Focus on study methodology: Studies were excluded from the review based on a failure to meet the inclusion criteria detailed above.			

Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Average hours of sleep per night, wake time, and bed time; student achievement information (e.g., credit accumulation, grade 9 EQAO, grade 10 Ontario Secondary School Literacy Test, average grade 9, 10, 11, and 12 marks by subject); ease of coming to school after schedule change, student opinion on school arrival time; school perceptions (7 question regarding general feelings towards their schools); hours per week spent on homework/ studying and sports; absenteeism rates; participation in sports, volunteer activities, and leadership programs; teacher-reported alertness and participation of students in the morning; feelings towards new schedule (Brown, 2011), School and non-school night sleep total, rise time, and bed time; letter grades earned by all students over a course of 6 years.; daytime sleepiness; tardiness and attendance rates; sleep behavior; continuous enrollment; graduation rates; whether students arrived late due to oversleeping, fell asleep in morning or afternoon class; depression; days home sick; impact of start time change on sports; overall perspectives on time change; teacher, administrator, counsellor, nurse, and parent perspectives on time change (Walhstrom, 2002).	**Guidance used to structure review (e.g., PRISMA, GRADE):** GRADE			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** Teacher-reported impact of change on school (Brown, 2011)				
Setting(s): Schools **Country(ies):** Canada, U.S., Israel, New Zealand, Croatia, Brazil **State/region/locality(ies) (even within other countries):** (Colorado, Rhode Island, Minnesota, Kentucky, North Carolina, Wyoming) **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Brown, 2011	Grade 9 to 12	"Late Start": Delayed school start time from 9:00am to 10:00am	Positive results are shown across academic indicators, staff and student perceptions, absenteeism rates, as well as overall average sleep times. Overall achievement trends are encouraging, the results are by no means definitive.	Mean age of participants involved was 18. There is an acknowledgement that implementation was not without its struggles.
Wahlstrom, 2002	Grade 9 to 12	Delayed school start time from 7:15am to 8:45am	Significant benefits such as improved attendance and enrollment rates, less sleeping in class, and **less student-reported depression.**	Students reported a negative outcome of the start time change being having to miss a full class due to sports game, while previously, only partial classes ever had to be missed. The reduction in learning time was seen as problematic. Continuous enrollment in the same district or same school rose significantly since the 1995-1996 school year.

19. Nasheeda A, Abdullah HB, Krauss SE, Ahmed NB. A Narrative Systematic Review of Life Skills Education: Effectiveness, Research Gaps, and Priorities. Internal Journal of Adolescence and Youth [Internet]. 2019 [cited 2019 Aug 26]; 24(3):362-379. Available from: https://www.tandfonline.com/doi/full/10.1080/02673843.2018.1479278				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Adolescents 10-19 years old	**Date range for review:** Inception of databases searched – 2016	**# of studies included:** 25		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Male athletes (mean age = 17.1 years) (Holt et al., 2008), high school male students (Maryam et al., 2011), high school students (mean age = 15.97 years) (Givaudan et al., 2008; Givaudan et al., 2007), 10th grade students (Jegannathan et al., 2014), Delinquent adolescent boys (Naseri & Babakhani, 2014), students aged 14-18 (Parvathy & Pillai, 2015), Students aged 12 & 16 (Tuttle et al., 2006), high school students (Vatankhah et al., 2014), students aged 15-17 years (Yadav & Iqbal, 2009), students aged 13-15 years (Chaudhary & Mehta, 2008), Grade 9 students (James et al., 2006)	**Databases searched for review:** Science Direct, Wiley, Springer, EBSCOhost, Google Scholar.	**Hi-Level Findings:** life skills tend to be effective in bringing about individual changes relevant to knowledge, skills and attitudes in risk areas as well as psychosocial skills. Several studies reported deficiencies in the transfer of skills as little emphasis was placed on acquiring skills through various approaches such as modelling, imitation and reinforcement.	As noted by author: Qualitative studies on life skills education were limited; only one qualitative study met the inclusion criteria of effectiveness of life skills experiences focusing on young people's learning experiences. . Many of the identified studies were based on assessment of life skills components rather than understanding what knowledge, skills and attitudes adolescents require in order for positive behavior change to occur. Hence, future research should be directed toward investigating how life skills program knowledge is translated into behavior and attitude change. Second, fewer studies have been conducted in developing country contexts in comparison to those carried out in developed countries.	
Intervention Type/Name/Df--**Overall:** Life Skills Education	**Review inclusion** criteria—Focus on study methodology: Inclusion was only generally defined. Studies were included if there were relevant to the research question; if the concepts and definitions of terms within the review were relevant to the research question; if key variables and measures in the review were relevant to the research question; if the studies had a concrete research design; and focused on adolescents aged 10-19 years.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: life skills education programs (Holt et al., 2008; Maryam et al., 2011; Jegannathan et al., 2014; Parvathy & Pillai, 2015; Vatankhah et al., 2014; Yadav & Iqbal, 2009; Chaudhary & Mehta, 2008), A Team Against AIDS (Givaudan et al., 2008; Givaudan et al., 2007), life and social skills training (Naseri & Babakhani, 2014), cognitive behavioral life skills training (Tuttle et al., 2006), life skills and HIV/AIDS education program (James et al., 2006).	**Review exclusion** criteria—Focus on study methodology: Exclusion from the review was based on a failure to meet the inclusion criteria detailed above.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Not specified				
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see table)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** (see table)				
Setting(s): N/A **Country(ies):** Mix of developed and developing countries. **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Individual				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Holt, 2008	Mean age = 17.1 years	Life skills education	Lack of evidence athletes were directly taught about life skills that were reported, rather the coach created opportunities for the student to demonstrate initiatives.	Sample was only 12 male athletes, with data obtained from 10 practices and 10 games. Strong quality rating.
Maryam, 2011	High school male students	Life skills education	Life skills programs could enhance levels of self-esteem in subjects.	All males. Moderate quality rating.
Givaudan, 2008	High school students (mean age = 15.97 years)	A Team Against AIDS	Positive effect over a medium time span (1 year follow up period) on knowledge and self-efficacy in condom use. Results are more effect of programs that are interactive and promote life skill such as decision-making, self-efficacy, and reflection on norms and attitudes.	Strong quality rating.
Jegannathan, 2014	10th grade students	Life skills education	Among all girls, scores improved in three out of four Life Skills Dimensions (on the Life Skills Development Scale-Adolescent Form) whereas boys improved on only one dimension. Boys showed improvement on three dimensions (Attitude Toward Suicide & Youth Self Report measures) with no improvement among girls.	Moderate quality rating. Difficult to discern which dimensions are being referenced.
Naseri, 2014	Delinquent adolescent boys	Life and social skills training	Physical and verbal aggression of adolescent boys significantly reduced because of life skills training, including anger control, problem solving and decision-making, self-cognition, confronting stress, and communication skills.	All male, targeted. Strong quality rating.
Parvathy, 2015	Students aged 14-18 years	Life skills education	Study revealed significant impact of Life Skills Education training on adolescents (measures included knowledge level, self-awareness, empathy skill)	Weak quality rating, no further details on study provided.
Tuttle, 2006	Students aged 12 & 16 years	Cognitive behavioral life skills training	Trends in the data seen with physical and mental health improving slightly for all subjects, as did their educational and vocational status.	Weak quality rating.
Vatankhah, 2014	High school students	Life skills education	Results showed life skills is effective on increasing self-esteem.	Weak quality rating.
Yadav, 2009	Students aged 15-17 years	Life skills education	Subjects improved significantly in post-condition on self-esteem, emotional, educational, total adjustment, and empathy. But, no significant difference was found on social adjustment in pre- and post-condition.	Weak quality rating.
Chaudhary, 2008	Students aged 13-15 years	Life skills education	Life skills education improved their self-image as well as boosted their confidence level.	Weak quality rating.
James, 2006	Grade 9 students	Life skills and HIV/AIDS education program	Schools where the program was partially implemented found no significantly different responses on most variables from the responses of students in the control schools. The full program did not influence behavior in terms of condom use in the long term indicating that condom using behaviors requires more than just knowledge, positive attitudes, and beliefs about its use.	Moderate quality rating.
Givaudan, 2007	Students mean age = 15.97 years	A Team Against AIDS	Effect on dependent variables show that the experimental group improved significantly in all variables (self-knowledge, decision-making, self-efficacy condom use, norms about condom use, attitudes towards condoms, knowledge about HIV/AIDS, communication on sexuality) after the implementation of life skills in the three different variable levels (personal, intervention, outcome)	Moderate quality rating.

20. O'Connor CA, Dyson J, Cowdell F, Watson R. Do universal school-based mental health promotion programmes improve the mental health and emotional wellbeing of young people? A literature review. Journal of Clinical Nursing [Internet]. 2018 Feb [cited 2019 July 26]; 27(3-4):e412-e426. Available from: https://www.ncbi.nlm.nih.gov/pubmed/28926147				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included:5-18 years old, categorized as: primary school aged children (5-10 years old); secondary school aged children (11-18 years old)	**Date range for review:** 1995-2015	**# of studies included**: 29		.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: secondary school aged children (11-18 years old) 14-16 years old (Barnes 2012), 12-14 years old (De Anda, 1998; Merrell, 2008), 13-15 years old (Economou, 2012), 13-14 years old (Essler, 2006), 10-14 years old (Hampel, 2007), 7-14 years old (Kimber, 2008), 14-18 years old (King, 2011), 12-16 years old (Kuyken, 2013), 15-18 years old (Metz, 2013), 14-16 years old (Rickwood, 2004), 13-16 years old (Sakellari, 2014)	**Databases searched for review:** CINAHL, MEDLINE, PsycINFO, ERIC, Education Research Complete.	**Hi-Level Findings:** Author still feels confident to conclude MH and EW programs are of value, but calls for further evaluative studies. 1) Reduction in stress post-intervention was found in 9 studies and 5 studies found no improvement, 4 studies reported increases in coping skills/strategies used by children that received interventions. 2) 4 studies found significant increase in social skills/functioning when comparing pre- and post-test scores and Durlak et al., 2011 and Sklad et al., 2012 both found that included studies showed results of enhanced social skills/increased levels of positive social behavior. 5 studies noted evidence of reduced anxiety levels and were sustained at 12 month follow up. 3) 4 studies reported increased knowledge of MH. Mixed results regarding attitudes towards MH.	As noted by author: Some studies had relatively small samples, making generalizing difficult. High levels of attrition was a problem for 4 of the 29 studies. Some bias was evident in studies like Kramer et al., 2009.	
Intervention Type/Name/Df--**Overall:** Interventions aimed at improving Mental health (MH) and emotional well-being (EW) defined as : "being happy and confident and not anxious or depressed... the ability to be autonomous, problem-solve, manage emotions, experience empathy, be resilient and attentive" 12 out of 29 utilized SEL. Other included stress management interventions, mindfulness interventions, anxiety and coping skills interventions, and MH education/anti-stigma interventions.	**Review inclusion** criteria—Focus on study methodology: English language, reports of universal interventions, conducted in school environment	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see above)	**Review exclusion** criteria—Focus on study methodology: Excluded reports of target intervention, interventions in non-school environments, and papers evaluating SEL interventions prior to 2008 that have been included in two SEL reviews mentioned (Durlak et al. 2011; Sklad et al. 2012).			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Three themes were identified: 1) help seeking and coping (14 of 29 papers) 2) social and emotional well-being (20 of 29 papers) 3) psycho-educational effectiveness (ability of a program to increase knowledge of MH and illness as well change negative attitudes/beliefs) (8 of 29 papers)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: anger, anxiety and blood pressure, anger control (Barnes, 2012), self-report measures of coping/relaxation (De Anda, 1998), student attitudes/beliefs towards people with mental illness (Economou, 2012), knowledge about MH (Essler, 2006), perceived self-efficacy, perceived stress, use of adaptive coping strategies (Hampell, 2007), measures of mental health/ associated health behaviors (Kimber, 2008), suicidal ideation, help-seeking behaviors, ability to identify support (King, 2011), levels of depressive symptoms, levels of stress (Kuyken, 2013), knowledge of social and emotional concepts and effective coping strategies (Merrell, 2008), emotional regulation, emotional awareness, stress levels (Metz, 2013), knowledge of MH, beliefs towards people with MH problems (Rickwood, 2004), attitudes towards MH (Sakellari, 2014).				

Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): School environments **Country(ies):** U.S., Scotland, South Africa, Sweden, Canada, Australia, Greece, England, Germany **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Schools				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Barnes, 2012	14-16 years old	Life Skills Training	Reduced anger, anxiety and blood pressure, improved anger control	Relatively small sample size/high level of attrition.
De Anda, 1998	12-14 years old	Stress management program	Improved coping strategies, reduced level of stress, increased use of relaxation strategies	Randomization of sample only used for female participants. Small sample.
Economou, 2012	13-15 years old	MH anti-stigma intervention	Positive changes in students' beliefs and attitudes towards people with mental illness.	No follow-up post-intervention. Convenience sampling.
Essler, 2006	13-14 years old	Educational intervention to challenge MH stigma/ promote MH	Increased knowledge of MH	Same quiz used pre- and post-intervention.
Hampel, 2007	10-14 years old	Stress management program	Increased perceived self-efficacy, less perceived stress and more adaptive coping at post- and follow-up assessment.	No randomization, no follow-up after 3 months.
Kimber, 2008	7-14 years old	SEL Program	Modest improvement on mental health and associated health behaviors	High level of attrition. Only fully completed and correctly completed questionnaires were analyzed.
King, 2011	14-18 years old	Suicide prevention and depression awareness program	Reduced suicidal ideation, increase in help-seeking behaviors, improved ability to identify support	High level of attrition. Sample chose may limit generalizability.
Kuyken, 2013	12-16 years old	Mindfulness program	Moderate reduction in low-grade depressive symptoms immediately following intervention/at 3 month follow-up, reduction levels of stress at 3 month follow-up.	Sample recruited from schools with prior interest in the intervention.
Merrell, 2008	12-14 years old	SEL Program	Increased knowledge of social and emotional concepts and effective coping strategies.	Relatively small samples. No follow-up.
Metz, 2013	15-18 years old	Mindfulness program	Improved emotional regulation, emotional awareness. Decrease in psychosomatic complaints and stress levels.	Convenience sampling.
Rickwood, 2004	14-16 years old	Educational MH Program	Increased knowledge and reduced negative beliefs about people with MH problems.	No follow-up, no randomization, differences in baseline data for intervention vs control groups.
Sakellari, 2014	13-16 years old	Educational MH Program	Improved attitudes towards MH.	Relatively small sample.

21. O'Reilly M, Svirydzenka N, Adams S, Dogra N. Review of mental health promotion interventions in schools. Social Psychiatry and Psychiatric Epidemiology [Internet]. 2018 July [cited 2019 July 26]; 53(7):647-662. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29752493				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: primary school through high school students	**Date range for review:** 2007-2017	**# of studies included:** 10	As noted by author: Search terminology was targeted to focus on mental health promotion, so relevant studies may have been excluded if they failed to use specific terminology. Methods used were of variable quality, authors were vague in description of the intervention..	Could not identify a specific guiding framework for the review.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Grades 5-9 (aged 11-15 years old) (Neilsen et al., 2015), 10-15 years old (Franz & Paulus, 2009), Grades 4-9 (Kimber et al., 2008), 12-15 years old (Haraldsson et al., 2008), Grades 7-12 (Butzer et al., 2017), secondary school students (Lendrum et al., 2013).		**Hi-Level Findings:** Limited advancements of universal interventions in the decade preceding the review. Despite methodological issues, there is still promise in pursuing universal wellbeing interventions.		
Intervention Type/Name/Df--**Overall:** Mental health promotion: actions to create living conditions and environments that support mental health and allow people to adapt and maintain healthy lifestyles (WHO).	**Databases searched for review:** SCOPUS, ERIC	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: "Up" (Neilsen et al., 2015), MindMatters (Franz & Paulus, 2009), Social and Emotional Training (SET) (Kimber et al., 2008), Health promotion program administered as a school subject each week for one year (Haraldsson et al., 2008), Yoga including mindfulness and meditation (Butzer et al., 2017) Social and Emotional Aspects of Learning (SEAL) approach (Lendrum et al., 2013).	**Review inclusion** criteria—Focus on study methodology: Study must be a universal mental health program (or equivalent); must be a whole-school intervention, program, framework, model, or set of tools, involving many levels of school personnel; target population must be school age (generally from 3-18).			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: promotion of mental health and/or wellbeing.	**Review exclusion** criteria—Focus on study methodology: Study could not be part of a book chapter, editorial, or guidance document; study could not be focused on risk factors or related to these; study could not simply be planning, development, or pilot of an intervention; study could not target children with pre-existing mental health programs.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Self-report of social and emotional competence (Neilsen et al., 2015), positive mental health/self-report of social competence (Franz & Paulus, 2009), self-reported internalizing, self-reported externalizing, self-reported mastery, contentment in school, bullying (Kimber et al., 2008), sense of wellbeing, self-reliance (Haraldsson et al., 2008), self-reports on mood, stress, sleep, academic performance (Butzer et al., 2017), social and emotional skills, behavior or mental difficulties (Lendrum et al., 2013).	**Guidance used to structure review (e.g., PRISMA, GRADE):** Could not be identified.			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** degree of shared expectations, communication among groups, assessment of school environment, bullying levels				
Setting(s): School environments **Country(ies):** Denmark, Germany, Sweden, U.S., U.K. **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Neilsen et al., 2015	11-15 years old	Up: promoting mental health. Composed of 4 components: activities for children, development of staff skills, involvement of parents, initiatives in the everyday life of schools	Statistically significant change of children reporting high social and emotional competence from before the intervention (33.3%) to after (40.8%).	
Franz & Paulus, 2009	10-15 years old	MindMatters: Australian program encouraging respect/tolerance and involves a range of school personnel and children. Encourages resilience, communication, problem-solving.	Some changes in positive mental health, some improvement in social competence. Effects were minimal.	
Kimber et al., 2008	Grades 4-9	SET: delivered by class teachers during school hours. Covers self-awareness, managing emotions, empathy, motivation, social competence.	Positive outcomes over 3 years in 5 out of 7 variables (self-report internalizing, externalizing, mastery, 'I Think I Am', and contentment in school). Effect sizes were small to medium (0.07 to 0.60). Significant interactions between SET and non-SET schools on all but one outcome variable across 5 years (particularly externalizing/internalizing behaviors). Bullying levels remained consistently low in SET schools compared to non-SET schools.	
Haraldsson et al., 2008	12-15 years old	25-30 lessons of a health promotion program. Stress intervention administered by physiotherapist.	At baseline no statistically significant difference between two groups. Those with stress intervention maintained their sense of wellbeing and those without deteriorated. No statistically significant difference between groups in terms of self-reliance.	
Butzer et al., 2017	Grades 7-12	35 minute long Yoga sessions delivered 1-2 times per week integrated into PE curriculum. Included mindfulness/meditation. Focused on stress management, emotional regulation, confidence building, promoting peer relationships.	44% had a positive view of the class, 25% had negative, and the rest mixed. 69% felt it helped raise mood and manage stress. 62% felt it had a positive effect on sleep. 25% felt it had a positive effect on academic performance.	
Lendrum et al., 2013	Secondary school students	SEAL for adolescents whole school framework. School visited once per term over 5 terms.	No reported impact on outcomes in social and emotional skills, behavior or mental difficulties. Demonstrated a need for greater awareness of emotional health and wellbeing in schools. School staff need to be better supported and increase their skills.	

22. Pandey A, Hale D, Das S, Goddings AL, Blakemore SJ, Viner RM. Effectiveness of universal self-regulation-based interventions in children and adolescents: A systematic review and meta-analysis. JAMA Pediatrics [Internet]. 2018 Jun 1 [cited 2019 July 26]; 172(6):566-575. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29710097				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Children and adolescents aged 0 to 19 years.	**Date range for review:** Beginning of database archives - July 2016	**# of studies included:** 49		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: 12-15 years old (Bowers et al., 2015), Children ages 7-14 (De Wit et al., 2007), Grades 9-12 (Fishbein et al., 2016), Grades 11 to 12 (Noggle et al., 2012), Students from 3 public schools (mean age of 13.6 years) (Cecchini et al., 2007), Grades 9 to 10 (Costigan et al., 2016).		**Hi-Level Findings:** Positive outcomes on health and social measures such as academic achievement, social skills, mental health, behavioral problems, conduct disorders, school suspensions, and substance abuse were reported. Study findings suggest that SR interventions are effective and that improvements in educational, health, and social outcomes can follow improvements in SR. Different types of interventions can be used to improve self-regulation, and many of these strategies appear effective.	As noted by author: The SR outcome measures were not uniform, and there was substantial heterogeneity in their reporting. Considering this limitation of the evidence base of SR interventions, the authors recommend that future research in SR should be directed to evaluate standard methods of reporting SR outcomes. The generalizability of the research findings may also be affected by the substantial number of studies conducted in the United States.	
Intervention Type/Name/Df--**Overall:** Universal interventions designed to promote self-regulation in children and adolescents. Self-regulation (SR): a psychological construct which encompasses a range of important competencies, including the capacity for controlling one's emotions, the ability to have positive interactions with others, the capacity for avoiding inappropriate or aggressive actions, and the ability to carry out self-directed learning. Cognitive process contributing to SR are often referred to as executive functions, and they include the ability to direct or focus attention, shift perspective, and adapt flexibly to changes (cognitive flexibility); retain information (working memory); and inhibit automatic or impulsive responses to achieve a goal, such as problem-solving (impulse control). Coded into 5 categories: curriculum interventions, physical activity and exercise interventions, mindfulness and yoga interventions, parenting and family-focused interventions, and other skills-based training.	**Databases searched for review:** MEDLINE, PubMed, PsycINFO, EMBASE, ERIC, CINAHL, British Education Index, Child Development and Adolescent Studies via EBSCO, and CENTRAL.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Student Success Skills (SSS) Program (Bowers et al., 2015), Big Brother Big Sister Program (De Wit et al., 2007), Mindful Yoga (Fishbein et al., 2016), Kripalu Yoga (Noggle et al., 2012), Personal & Social Responsibility model (Cecchini et al., 2007), High-intensity interval training (HIIT) (Costigan et al., 2016).	**Review inclusion** criteria—Focus on study methodology: Studies were eligible if they 1) reported randomized clinical trials and cluster randomized trials; 2) evaluated universal interventions designed to improve SR in children and adolescents (age 0-19 years); and 3) included at least 1 child-based outcome associated with SR skills.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Self-regulation, distal health and social outcomes (e.g., academic achievement, substance abuse, psychological stress, well-being)	**Review exclusion** criteria—Focus on study methodology: Studies were excluded if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: School connectedness, SR development (Bowers et al., 2015), Social skills (self-control), social anxiety (De Wit et al., 2007), SR, psychological stress, substance use (Fishbein et al., 2016), SR, psychological well-being (Noggle et al., 2012), Self-control, fair play (Cecchini et al., 2007), Executive function, psychological well-being, psychological distress, and physical self-concept (Costigan et al., 2016)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			

Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured: N/A**				
Setting(s): Multiple **Country(ies): US, UK, Canada, European countries** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Family, Individual				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Bowers, 2015	12-15 years old	Student Success Skills (SSS) Program (Curriculum intervention)	Results from multiple path analyses indicated model fits based on SSS participation for behavioral regulation for the treatment group, feelings of connectedness for females in the treatment group, and reading growth for low-achieving students.	
De Wit, 2007	Children ages 7-14	Big Brother Big Sister Program (Family based interventions)	There was significant benefit in social skills in intervention group compared to controls. (symptoms of emotional problems, symptoms of social anxiety).	
Fishbein, 2016	Grades 9-12	Mindful Yoga (Mindfulness/Yoga interventions)	At post-test, students in the yoga condition, as compared to control students, exhibited trends toward decreased alcohol use and improved teacher-rated social skills ($p < .10$); and showed a non-significant increase in arousal in response to relevant stimuli as measured in skin conductance. Significant effects were not found on hypothesized proximal measures of self-regulation, mood, mindfulness, or involuntary engagement coping.	
Noggle, 2012	Grades 11 to 12	Kirpalu Yoga (Mindfulness/Yoga interventions)	Although PE-as-usual students showed decreases in primary outcomes, yoga students maintained or improved. Total mood disturbance improved in yoga students and worsened in controls ($p = .015$), as did Profile of Mood States-Short Form (POMS-SF) Tension-Anxiety subscale ($p = .002$). Although positive affect remained unchanged in both, negative affect significantly worsened in controls while improving in yoga students ($p = .006$). Secondary outcomes were not significant. Students rated yoga fairly high, despite moderate attendance.	
Cecchini, 2007	Students from 3 public schools (mean age of 13.6 years)	Personal & Social Responsibility model (Exercise-based interventions)	Findings revealed that subsequent to the intervention programme, experimental group A improved personal feedback, delayed gratification, self-control, and process self-regulation. Experimental groups A and B showed an improvement in indicators of personal and social responsibility regarding enjoyment and sportsmanship and a decrease in variables related to the drive to win, rough play, contact fouls, and poor sportsmanship. No significant changes were observed in the control group.	
Costigan, 2016	Grades 9 to 10	High-intensity interval training (HIIT) (Exercise-based interventions)	While the results were not significant, there was small change in psychological wellbeing in the intervention group compared to controls.	

23. Pennington A, Watkins M, Bagnall A, et al. 2018, Aug. A Systematic Review of Evidence on the Impacts of Joint Decision-making on Community Wellbeing. Available from https://whatworkswellbeing.org/product/joint-decision-making-full-report/.				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All age/developmental groups included: All	**Date range:** 1980-2016	**# of studies included overall:** 29	Limitations included those common in evidence on the impacts of complex social determinants of health and wellbeing. It is surprising that evidence on the impacts of interventions that seek to meaningfully involve communities in decision-making is still limited nearly 50 years after publication of the Ladder of Citizen Participation (Arnstein, 1969). **This review can be used as a starting point** for understanding and addressing limitations and gaps in the current evidence base. Although the vast majority of the included studies focused on a **socially disadvantaged group or groups**, ... very few of the studies attempted to examine the distribution of impacts from involvement in community decision-making across different socioeconomic, ethnic, or other potentially disadvantaged groups.	Included designs were qualitative, mixed methods, and case studies. Almost all were cross-sectional. Only one study including children and adolescents was quantitative (not the one reporting outcomes for youth). Only one study reported personal outcomes for young people (age not provided).
Age/developmental group included relevant to H.S. aged teens ages 13-18 - specify by age if author doesn't aggregate by relevant age group: 7 studies included participants who were children or adolescents.	**Databases searched:** MEDLINE and MEDLINE In-Process & Other Non- Indexed Citations, Social Sciences Citation Index, IDOX, PsycINFO.	**High-level findings:** Despite limitations, ...the available evidence clearly demonstrates that there is a wide range of potential benefits from community involvement in decision-making, which include benefits to both participants and their wider communities. The review findings ... [link] increased levels of 'collective control' to better community health and wellbeing. The included studies provide **evidence that joint decision-making interventions can be successful in helping to deflect threats to the local (living) environment** and in **resisting 'hollowing out' of neighbourhood services and facilities**, in **maintaining and enhancing local conditions**, and in **attracting resources to create better places to live.** 15 of the 29 included studies provided some evidence of potential **adverse impacts** for those participating. ...adverse impacts were associated with problems in joint decision-making intervention **implementation processes**. There was no evidence that the participants made 'poor' decisions leading to negative effects.		
Intervention(s) Type/Name--Overall Empowerment-based joint decision-making interventions at the community level ((policies, plans, programmes, or projects) [10] defined using a Theory of Change: The Community Wellbeing Evidence Programme consortium has produced a working Theory of Change (South et al., 2017), in which power is proposed to have a mechanistic and cyclical relationship with community wellbeing. It is proposed that increased community power, exercised through meaningful participation in decision-making and governance will yield improved community conditions and individual benefits, eventually leading to increased community (and individual) wellbeing. Intervention types identified included: community development; urban renewal; participatory budgeting; integrating public services; citizens' jury; crime prevention; protect and enhance community facility; natural disaster recovery planning. It is the first systematic review that has specifically examined the community wellbeing- related impacts of empowerment-based participatory interventions consistent with Arnstein's 'degrees of citizen power'. All of the interventions were designed with the intention of empowering community members to take greater control of decisions that affect their lives, although some fell short of this intention during delivery.	**Review inclusion criteria** This review focusses specifically on current evidence from evaluations of interventions that are empowerment-based... It only includes evidence from evaluations of interventions ...that considered wellbeing-related outcomes (qualitative, or quantitative). It only includes evidence from evaluations of interventions set in the 'living environment' of communities	**13-18-year-old (or similar) Teen specific findings: (or see Teen Table below)** Enhanced personal development of youth participants (emotional, social, confidence, friendship, organizational and financial skills) (Blanchet-Cohen, 2014) No other youth outcomes reported in review.		

Intervention(s) Type/Name--examined for 13-18-year-olds or equivalent (specify) – Youth-led decision-making in **community development** grants (Blanchet-Cohen, 2014); **urban renewal** (ODPM, 2005); urban renewal/gardening in green space (Porter, 2013); urban renewal/redesigning a neighborhood park (Patton-Lopez, 2015); community-initiated urban development (Semenza, 2007).	**Review exclusion criteria** Evidence from healthcare, education, or workplace settings, which have been covered quite extensively in other literature. .. Traditional health promotion interventions (e.g. to address physical exercise, smoking, alcohol consumption, drug misuse) involving public participation have also been extensively researched and reviewed previously.			
Outcomes examined overall --include all but highlight PSWEB outcomes Various measures of community wellbeing, defined as: '***Community wellbeing*** *is about strong networks of relationships and support between people in a community, both in close relationships and friendships, and between neighbours and acquaintances*' … In addition, concepts related to community wellbeing such as 'social wellbeing', 'social capital', 'social cohesion', 'social inclusion', and 'community resilience' were also considered…When [Pennington et al.] refer to 'community wellbeing' throughout this document, this includes the wellbeing of individuals and groups, and determinants of their wellbeing, as components of community wellbeing. However, the report notes that community wellbeing is more than the sum of individuals' wellbeing.	**Guidance used to structure review (e.g., PRISMA, GRADE)** Standard systematic review methodology, as described in the WWC- WB Methods Guide (Snape et al., 2017), and is reported following PRISMA and PRISMA-Equity guidelines . Searches of **grey literature** were conducted via the Conference Proceedings Citations Index (CPCI), ProQuest Dissertations & Theses, OpenGrey, Google, Google Scholar, and through searches for, and inspection of, specialist websites and databases. A **call for evidence** was issued by What Works Wellbeing Centre. We also directly contacted **academic experts** on the health and wellbeing impacts of empowerment- based interventions in communities.			
Outcomes examined for 13-18-year-olds or equivalent—include all but highlight PSEWB. Enhanced personal development (Blanchet-Cohen, 2014)				
Outcomes examined for social/built/structural environments and/or people surrounding 13-18-year-olds (global/ cultural, national, community, interpersonal level)--Specify outcome and for whom it is measured. Various measures of community wellbeing				
Setting(s): communities engaged in joint decision-making **Country(ies):** OECD countries (UK, USA, Canada, Italy Israel) **State/region/locality(ies) (even within other countries)** **Level (e.g., global/cultural, national, community, interpersonal):** community				

24. Punukollu M, Marques M. Use of Mobile Apps and Technologies in Child and Adolescent Mental Health: A Systematic Review. Evidence-Based Mental Health [Internet]. 2019 July 29 [cited 2019 Aug 13]; ePub ahead of print. Available from: https://ebmh.bmj.com/content/early/2019/07/29/ebmental-2019-300093.info				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 10 to 29-year olds.	**Date range for review:** 2007-2019	**# of studies included:** 4		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Ages 10+ (Jang et al., 2017), 13-17 (Johansson et al., 2013), 14-24 (Kauer et al., 2012), students aged 13-17 (Whittaker et al., 2017).		**Hi-Level Findings:** Difference between the intervention groups and the control groups was non-significant on percentage of those who reported the program to be helpful. No other high-level observations were made (focus on individual studies due to small number of studies included). The author notes that, because of the age of participants, the full effect of the various interventions may have been obscured by the natural course of child development as there is generally a steep increase in depressive symptoms throughout adolescence. The author acknowledges that a significant disadvantage of the mental health apps and technologies is that they are not currently commercially available which means reviewers cannot assess them for their quality and user-friendliness.	As noted by author: Only the results of "full" studies are included, which unfortunately neglects potentially available literature that would have supplemented this work. The small number of studies and small sample sizes also limits the power of the review, as does the varying quality and bias of the papers reviewed.	
Intervention Type/Name/Df--**Overall:**	**Databases searched for review:** MEDLINE, PsycINFO, EMBASE, Allied and Complementary Medicine, Health Technology Assessment Guide, Cochrane Register of Controlled Trials.	**Adolescent-Specific Findings:** (see below)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Mobile app self-assessment of depression and suicide risk (Jang et al., 2017), Automated telephone calls with interactive voice response asking participants to evaluate current mood (Johansson et al., 2013), Mobile app self-report on mood, stress, daily activities, and coping strategies, (Kauer et al., 2012), Mobile phone-based multimedia messages (CBT-based texts, video messages, cartoons) (Whittaker et al., 2017).	**Review inclusion** criteria—Focus on study methodology: Studies were included if they were freely accessible RCTs or cross-sectional studies on mental health apps or technologies which had a primary outcome measure related to mental health or wellbeing and included study participants under 18 years of age.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Depression scores, anxiety scores, suicide.	**Review exclusion** criteria—Focus on study methodology: Studies were excluded if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18-year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: depression scores, suicide (Jang et al., 2017), mood (Johansson et al., 2013), emotional self-awareness, depressive symptoms, anxiety, stress, MH outcomes (Kauer et al., 2012), depression scores (Whittaker et al., 2017).	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): general practice clinics, homes, inpatient settings **Country(ies):** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Individual				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Jang et al., 2017	Ages 10+	Mobile app self-assessment of depression and suicide risk	Positive self-assessment scores were associated with significant increased risk of depression and suicide (and were consistent with population proportions seen in previously reported data).	(App available worldwide but only in Korean language.) High risk of bias.
Johansson et al., 2013	13-17 years	Automated telephone calls with interactive voice response asking participants to evaluate current mood	IVR is an appropriate follow-up method following inpatient psychiatric treatment in adolescents with no difference observed in mood if followed up every two day or every four days.	(Sample was recent inpatients)
Kauer et al., 2012	14-24 years	Mobile app self-report on mood, stress, daily activities, and coping strategies.	Increased emotional self-awareness was predictive of a decrease in depressive symptoms; however, the intervention was not causally responsible itself for the decrease in depressive symptoms. Intervention group showed significant increases in ESA with medium to large significant main effects for time for depression, anxiety, and stress. Analysis suggested that participation in RCT itself enhanced mental healthcare and improved MH outcomes.	(Sample was patients, app was used as a clinical assistance tool in general practice)
Whittaker et al., 2017	Students aged 13-17 years	Mobile phone-based multimedia messages (CBT-based texts, video messages, cartoons)	No significant effect of CBT-based program over control. Both programs demonstrated small improvements in depression score immediately after the intervention followed by a worsening of scores at 12-month follow-up.	

25. Raposa EB, Rhodes J, Stams GJJM, Card N, Burton S, Schwartz S, et al. The Effects of Youth Mentoring Programs: A Meta-Analysis of Outcome Studies. Journal of Youth and Adolescence [Internet]. 2019 Jan 19 [cited 2019 Aug 20]; 48:423-443. Available from: https://link.springer.com/article/10.1007%2Fs10964-019-00982-8				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Youth ages 9-16	**Date range for review:** 1975-2017	**# of studies included:** 70	As noted by author: There was substantial heterogeneity both across studies included in this set of analyses, as well as between effect sizes extracted from the same study. Multiple moderators were tested to attempt to account for this heterogeneity in the current sample of studies; however, further research is needed to more precisely determine which program practices are most effective for which populations of mentors and youth, and for which particular youth outcomes. Although the present analyses showed no evidence of publication bias, it is important to acknowledge that studies that do not support the effectiveness of mentoring programs might be less likely to appear in peer-reviewed journals, dissertations, or research reports, thereby influencing interpretation of results.	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: youth ages 9-16 (mean age 12)	**Databases searched for review:** PsycINFO, ERIC, and ProQuest.	**Hi-Level Findings:** Analyses of the data from 70 studies of youth mentoring programs revealed that the mean effect of mentoring on youth outcomes was g=.21. Although this effect is considered small by Cohen's guidelines, it falls well within the medium/moderate range of empirical guidelines for the average effect sizes of universal youth prevention programs (Tanner-Smith et al. 2018). At the same time, however, many youth who are referred to mentoring programs are already experiencing sub-clinical levels of difficulties and symptoms, and thus present greater room for improvement on outcome assessments than youth in primary prevention programs (Jarjoura et al. 2018). As such, comparisons with the somewhat larger effects reported in indicated (secondary) prevention programs may also be warranted (Durlak and Wells 1998; Tanner-Smith et al. 2018). The effect size observed in these analyses is remarkably consistent with past comprehensive meta-analyses of youth mentoring, which have shown overall effect sizes ranging from .18 to .21 (DuBois et al. 2002; 2011). It is important to note that even small to moderate improvements in aspects of youth functioning like substance use, depressive symptoms, and academic engagement can have an important influence on trajectories of positive youth development, especially when these improvements occur during critical periods of development (Tanner-Smith et al. 2018).		
Intervention Type/Name/Df--**Overall:** Mentoring program: Intergenerational, one-on-one. Mentoring is defined as a non-parental adult or older youth acting in a non-professional helping capacity with a specific younger person to promote positive youth outcomes through the relationship.	**Review inclusion** criteria—Focus on study methodology: Studies must 1) include a formal mentoring program in line with the provided definition for mentoring, 2) include an evaluation with a comparison group (including RCTs and/or quasi-experimental studies)	**Adolescent-Specific Findings:** (see above) No significant difference by age of mentee.		

Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see above)	**Review exclusion** criteria—Focus on study methodology: Studies that involved mentoring programs that had relationships that were more professional in nature (e.g., tutoring, coaching) were excluded from the meta-analysis. Studies were excluded during the second round of screening if they 1) involved similar-age peer mentoring, 2) included only group mentoring, 3) involved adult mentees older than 18 years of age, 4) had insufficient treatment versus control group differentiation, 5) utilized adjunctive mentoring (i.e., evaluations in which mentoring was not one of the primary or secondary components), 6) involved outcome that failed to fall into one of the following broad categories: psychological, social, school, health, or cognitive, and 7) lacked sufficient information to compute an effect size and the author could not be reached to supply the data or did not respond to requests for additional information within a specified timeframe.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Broadly coded into 5 categories: Psychological, Social, Cognitive, Health, or School	**Guidance used to structure review (e.g., PRISMA, GRADE): PRISMA**			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: School: Academic functioning (e.g., GPA, graduation rate, achievement test scores), extracurricular engagement (e.g., involvement in community service, sports activities); **Psychological: externalizing symptoms (e.g., aggression, delinquency, bullying), internalizing symptoms (e.g., depression, anxiety), self-regulation problems (e.g., attentional difficulties, hyperactivity, self-control problems), other mental health (e.g., use of psychological services or medication**); Health: substance use, physical health (e.g., exercise, eating behavior, sexual behavior), well-being (e.g., quality of life, life satisfaction); Cognition: Executive functioning (e.g., planning and prioritizing, goal orientation, working memory), self-cognition (e.g., perceived self-efficacy, growth mindset, grit); School: school engagement (e.g., school connectedness, attendance, school liking); Social: social skills (e.g., cooperation, empathy, turn-taking), perceived social support, relationship quality (e.g., perceptions of relationship quality with teachers, parents, peers)				
Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:**				
Setting(s): community and school **Country(ies): U.S.** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST): school, community**				

26. Rodriguez-Ayllon M, Cadenas-Sanchez C, Estevez-Lopez F, Munoz NE, Mora-Gonzalez J, Migueles JH, et al. Role of Physical Activity and Sedentary Behavior in the Mental Health of Preschoolers, Children, and Adolescents: A Systematic Review and Meta-Analysis. Sports Medicine [Internet]. 2019 Apr 16 [cited 2019 July 26]; (Epub ahead of print). Available from: https://www.ncbi.nlm.nih.gov/pubmed/3099359				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: preschoolers (2-5 years of age), children (6-11 years of age), and adolescents (12-18 years of age).	**Date range for review:** Jan 2013 – Apr 2018	**# of studies included**: 114 (12 in meta-analysis)		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Adolescents aged 12-18 years		**Hi-Level Findings:** Small positive effect of exercise interventions on mental health outcome in adolescents, physical activity was inversely associated with psychological ill-being and positively associated with psychological well-being, and there was positive association between sedentary behavior and depression and an inverse association between sedentary behavior and satisfaction with life and happiness in children and adolescents.	As noted by author: expanding search to more databases may have produced more data for the analysis. Because of the heterogeneity of the outcome measures, it was not possible to conduct a meta-analysis of the prospective longitudinal studies.	
Intervention Type/Name/Df--**Overall:** Physical activity and sedentary behavior interventions.	**Databases searched for review:** PubMed, Web of Science	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Yoga (Telles et al., 2013; Das et al., 2016; Cox et al., 2017), aerobic exercise (Hasanpour et al., 2014; Peng et al., 2015), aerobic exercise, resistance exercise, or combined exercise (Goldfield et al., 2015), high-intensity interval training (Costigan et al., 2016), Chen-style Tai Chi (Lee et al., 2013), active video-game program (Staiano et al., 2013), Tai Chi (Bao et al., 2015), CrossFit (Eather et al., 2016).	**Review inclusion** criteria—Focus on study methodology: Studies must be intervention studies (RCTs and non-RCTs) and prospective longitudinal and cross-sectional studies focused on physical activity, sedentary behavior and mental health; must be published in either English or Spanish; study must include either preschoolers, children, and/or adolescents; and must address the association between physical activity and/or sedentary behavior and at least one psychological ill-being measure and/or psychological well-being measure.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Measures of psychological well-being (e.g., self-esteem, self-image, happiness, positive affect) and measures of psychological ill-being (e.g., depression symptoms, stress, anxiety symptoms),	**Review exclusion** criteria—Focus on study methodology: Grey literature and conference proceedings were not included. Studies including individuals with physical or psychological disorders diagnosed by medical records were excluded. Studies involving elite athletes, as well as those involving animals were excluded. Multiple health behavior interventions were also excluded.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Battle's Self-Esteem Inventory (Telles et al., 2013), Coopersmith Self-Esteem Inventory (Hasanpour et al., 2014), Brunel Mood Scale, Multiple Body Self-Relations Questionnaire, Physical Self-Perceptions Questionnaire (Goldfield et al., 2015), Flourishing, Kessler Psychological Distress, Physical Self-Description, One-item Feelings State (Costigan et al., 2016), Perceived Stress Scale (Lee et al., 2013), Rosenberg Self-Esteem Scale (Staiano et al., 2013), "I am" statement questionnaire (Bao et al., 2015), Mental Health Scale by Wang (Peng et al., 2015), Self-Efficacy Scale for Children (Das et al., 2016), Strength and Difficulties Questionnaire, Physical Self-Description Questionnaire (Eather et al., 2016), Objectified Body Consciousness Scale, Physical Self-Description Questionnaire, The Body Appreciation Scale (Cox et al., 2017)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				

Setting(s): not reported **Country(ies):** Mostly OECD countries, but India, Iran,China, Korea, were also sites for studies. **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** Individual				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Telles et al., 2013	8-13 years	Yoga vs physical exercises (45 minutes 5 days a week)	There was only one significant difference between the groups in social self-esteem that was higher in the exercise group, all other differences were not significant.	
Hasanpour et al., 2014	13-19 years	60-80% max heart rate activity vs control 60 minutes 3 days a week	A significant difference between groups was obtained in post self-esteem scores (p=0.001). One month after intervention, results showed that despite the amount of time elapsed, the effects of aerobic exercise still persisted (p=0.002)	100% female sample.
Goldfield et al., 2015	14-18 years	Aerobic exercise vs control, resistance exercise vs control, combined exercise vs control (45 minutes 3 days a week)	All groups (including control) improved on body image. Only the resistance group showed a significant reduction in depressive symptoms (p=0.02). The resistance group showed greater increases than control on global self-esteem but all groups (excluding the control group) improved on vigor and global self-esteem.	
Costigan et al., 2016	14-16 years	High-intensity interval training with aerobic vs control and combined vs control (8-10 minutes 3 days a week)	Results were not significant but a small improvement in psychological well-being was observed in the aerobic exercise group. Small improvements in psychological well-being and perceived appearance were observed in the combined group. Feelings improved in both groups but were significant only in the aerobic group (p=0.001).	
Lee et al., 2013	11-16 years	Chen-style Tai Chi vs control (80 minutes 1 day a week)	No significant difference was noted in changes in stress levels before and after the intervention between the two groups.	
Staiano et al., 2013	15-19 years	Active video-game program (competitive vs control and cooperative vs control) 30-60 minutes 3 days a week	The growth curve analysis of self-esteem change yielded no condition effects. There were no significant changes in self-esteem in any group.	
Bao et al., 2015	13-16 years	Tai Chi vs gymnastics 60 minutes 5 days a week	Significant reduction of anxiety in the experimental group compared with the control group was observed. No significant differences, in relation to physical appearance and happiness, between the Tai Chi and control groups were found.	
Peng et al., 2015	14-19 years	Exercise vs control (50-80% max heart rate) 80 minutes 2 days a week	The intervention group was superior to the control group in terms of anxiety, depression, emotional imbalance, and psychological balance. The difference was statistically significant (p<0.05).	
Das et al., 2016	11-16 years	Yoga vs control 60-120 minutes every weekday	Yoga group showed a significant increase in academic self-efficacy (p<0.001), social self-efficacy (p<0.001), and emotional self-efficacy (p<0.001), whereas there was no significant changes in the scores of the control group.	
Eather et al., 2016	15.4 years	CrossFit vs control 60 minutes 2 days a week	There were no significant intervention effects on mental health or potential mediators in the full study sample. Intervention participants categorized as 'at risk' of internalizing problems demonstrated improvements in self-esteem, perceived body fat, perceived appearance, physical self-concept, and total difficulties score. A medium-large positive effect on perceived body fat was also observed in boys.	
Cox et al., 2017	13-17 years	Yoga vs control 60 minutes 2 days a week	Results showed significant (p=0.004), moderate decreases in trait body surveillance and minimal, non-significant increases in physical self-worth. Change in trait body surveillance was inversely related to change in physical self-worth and body appreciation in yoga participants.	

27. Salerno JP. Effectiveness of Universal School-Based Mental Health Awareness Programs Among Youth in the United States: A Systematic Review. Journal of School Health [Internet]. 2016 Dec [cited 2019 July 26]; 86(12):922-931. Available from: https://www.ncbi.nlm.nih.gov/pubmed/27866385				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: School children in grades 5 to 12	**Date range for review:** 1988-2016	**# of studies included**: 15	As noted by author: Only a single individual conducted the systematic literature search. Many studies conducted in schools are using study designs that lack strength in establishing true cause-effect relationships. For example: Only 3 studies used randomized controlled or Solomon 4-groups study designs. Experimental studies suffered from lack of true random assignment; Case-series design studies: high risk of bias; In many instances, information to assess risk of bias was missing. Stigma is the attitude most linked to poor mental health outcomes, but only 5 of 11 mental health attitude studies addressed stigma.	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: All interventions involved students from grades 5 to 12.	**Databases searched for review:** PsycINFO, Cochrane Library, PubMed	**Hi-Level Findings:** Overall, universal school-based mental health awareness programs appear promising but more research is needed. 12 studies measured students' knowledge of mental health and all found improvement in knowledge at post-test but not all found statistical significance; nine out of 11 studies assessing attitudes found improvements with 6 finding statistically significant improvements, 5 out of 7 studies assessing help-seeking found improvement though 2 did not find significant effects.		
Intervention Type/Name/Df--**Overall:** Universal, school-based mental health awareness programs of various forms (primarily instructor-led traditional education curriculum led by a faculty adviser, counselor, teacher, nurse, researcher, etc.)	**Review inclusion criteria**— Studies must be conducted within the United States in a school setting. Study participants must be students enrolled in a K-12 school. Study must be universal in nature.	**Adolescent-Specific Findings:** (see above)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Focus areas of programs included: general mental health, suicide, violence				
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Change in knowledge, attitudes, and/or help-seeking (willingness, intentions, attitudes, likelihood, behaviors, and knowledge).	**Review exclusion** criteria—Studies that targeted students diagnosed with mental illnesses were not included. Non-research or grey literature articles were not included. Interventions that included parents beyond obtaining student consent were excluded. No restrictions on study design.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see above)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA; JBI Descriptive Case-series; Randomized Control Pseudo-randomized Trial Critical Appraisal Tools			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): School environments **Country(ies):** U.S. **State/region/locality(ies) (even within other countries): not reported** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School				

28. Skeen S, Laurenzi CA, Gordon SL, du Toit S, Tomlinson M, Dua T, et al. Adolescent Mental Health Program Components and Behavior Risk Reduction: A Meta-analysis. Pediatrics [Internet]. 2019 Jul 1 [cited 2019 July 26]; (Epub ahead of print). Available from: https://www.ncbi.nlm.nih.gov/pubmed/31262779				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: adolescents aged 10 to 19.	**Date range for review:** 2000-2018	**# of studies included:** 158	As noted by author: Most included studies were from high-income settings, limiting the applicability of the findings to low- and middle-income countries. Samples only included trials.	Very good review to use as a framework for developing an adolescent wellbeing program!
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: All interventions included adolescents aged 10-19		**Hi-Level Findings:** Universally delivered interventions can improve adolescent mental health and reduce risk behavior. 7 intervention components predicted only positive effects (interpersonal skills, emotional regulation, alcohol and drug education, mindfulness, problem solving, assertive training, stress management). Of this 7, 3 components predicted positive effects across multiple outcomes (interpersonal skills training, emotional regulation, alcohol and drug education). 6 practice components were associated with mixed results (conflict resolution, coping skills, goal setting, relaxation, skills to resist peer pressure, self-efficacy).		Purpose of review: ""Helping Adolescents Thrive" is a World Health Organization and United Nations Children's Fund initiative used to develop a package of evidence-based psychological interventions to promote adolescent mental health and prevent mental disorders and risk behaviors among adolescents. As a part of this project, we conducted a systematic review, meta-analysis, and program components analysis of universally delivered interventions that sought these aims. Our purpose of this review was to inform the development of the intervention package. Specifically, we wanted to identify content-related features of programs (known as program or practice components) that consistently predict larger effect sizes in these programs across a range of outcomes."
Intervention Type/Name/Df--**Overall:** Psychosocial interventions (mix of face-to-face and digital delivery methods) including components of: activity monitoring and scheduling, alcohol and/or drug education, anger management, assertiveness, behavioral activation, civic and/or social responsibility, cognitive restricting, communication skills, conflict resolution, coping skills, decision making, emotional regulation, goal setting, insight building, interpersonal relationships and/or skills, mental health literacy, mindfulness, problem solving, relaxation, resisting drug/alcohol-related peer pressure, self-efficacy, self-monitoring, social skills, stress management, support networking.	**Databases searched for review:** PubMed, MEDLINE, PsycINFO, SCOPUS, Embase, Applied social Sciences Index Abstracts	**H.S. aged Adolescent-Specific Findings:** (see above)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see above)	**Review inclusion criteria—Focus on study methodology**: Studies included must 1) be RCTs of psychosocial interventions 2) include adolescents participants between 10 and 19 years of age 3) include trial interventions with the primary or secondary aims of promoting mental health or preventing mental disorders, reducing risk behaviors, or reducing self-harm and suicide 4) be universal in its application.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Positive mental health (mental well-being, resilience, coping, emotional regulation); depressive and anxious symptomatology; violence perpetration, aggression, and bullying; and alcohol and other substance use.	**Review exclusion** criteria—Focus on study methodology: studies were excluded if they failed to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see above)	**Guidance used to structure review (e.g., PRISMA, GRADE):** GRADE			

Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): multiple, including digital/online **Country(ies): high-income** **State/region/locality(ies) (even within other countries): not reported** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Interpersonal, Individual				

29. Soulakova B, Kasal A, Butzer B, Winkler P. Meta-Review on the Effectiveness of Classroom-Based Psychological Interventions Aimed at Improving Student Mental Health and Well-Being, and Preventing Mental Illness. The Journal of Primary Prevention [Internet]. 2019 May 28 [cited 2019 Aug 6]; 40(3):255-278. Available from: https://link.springer.com/article/10.1007%2Fs10935-019-00552-5				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: not defined	**Date range for review:** 2011 - 2016	**# of studies included**: 10	As noted by author: Due to large heterogeneity of the outcomes measured, a meta-analytic evaluation was not possible and thus only a narrative synthesis was done.	Ages were not provided with the included studies. Studies that clearly identified an adolescent population and adolescent findings were included in the Teen Specific Findings table but there may be more that were not identifiable.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: 12-18 years old (Yager et al., 2013), Grades 1 through 12 (Zenner et al., 2014), Students aged 8 to 15 years old (Maggin & Johnson, 2014).		**Hi-Level Findings:** Overall effectiveness reported in the included studies was significant for the most part. Effect sizes ranged from small to large. The authors of all of the studies emphasized the need for additional high-quality trials to further examine the effectiveness of school-based psychological interventions aimed at improving student mental health and well-being, and preventing mental illness.		
Intervention Type/Name/Df--**Overall:** Mindfulness, Social Emotional Learning, Cognitive Behavior Therapy, Yoga, and Body-Image interventions.	**Databases searched for review:** PsycINFO, Web of Knowledge, MEDLINE, EMBASE, Health Management Information Consortium.	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: Body image interventions (Yager et al., 2013), Mindfulness-Based Intervention (school setting) (Zenner et al., 2014), FRIENDS program (Maggin & Johnson, 2014)	**Review inclusion criteria—Focus on study methodology**: Studies had to be either meta-analyses or systematic reviews focused on interventions in school classrooms that targeted non-clinical populations. When a meta-analysis or systematic review also investigated non-classroom-based studies, at least half of the studies reviewed had to be conducted in classrooms. The same criteria were used for studies that included clinical and nonclinical populations. Second, strategies discussed in each article had to be classroom-based psychological interventions aimed at improving student mental health and well-being, and preventing mental illness. Third, studies were only included if they were rated as having high methodological quality according to AMSTAR guidelines.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: no explicit outcomes of interest identified for the review.	**Review exclusion** criteria—Focus on study methodology: Studies were excluded if they focused on client therapy work or individual counseling or mentoring with children. In addition, studies that reported environmental or physical influences on mental health, such as diet, obesity prevention, or exercise interventions. Educational interventions that focused solely on providing theoretical descriptions and explanations of mental illnesses or suicide were also excluded. Reviews focused on studies investigating interventions for preventing bullying in schools or focused exclusively on clinical populations were excluded.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: **body image**, **attitudes towards eating**, healthy eating behaviors, **drive for thinness** (Yager et al., 2013), cognitive performance, **resilience, stress, emotional problems,** third-party ratings (i.e., teacher or parent ratings) (Zenner et al., 2014), levels of anxiety (Maggin & Johnson, 2014).	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA Statement, PICO; AMSTAR for methodological quality			

Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools **Country(ies): not reported** **State/region/locality(ies) (even within other countries):** **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Individual				
TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Yager et al., 2013	12-18 years old	Body image interventions	7 of the 16 programs were effective in improving body image on at least one measure from pre- to post-test (although effect sizes were small; d= 0.22-0.48). All of the effective interventions were conducted with younger adolescents aged 12 to 13.5. None of the interventions targeting adolescents aged 14 to 16 were found to be effective. However, some interventions were found to be effective in this older age group with regard to other outcomes, such as reducing the drive for thinness and promoting healthy attitudes toward eating and healthy eating behaviors. Less than 20% of all programs had sustained effects on body image at follow-up.	
Zenner et al., 2014	Grades 1 through 12	Mindfulness-Based Interventions (school settings)	24 studies reported a significant medium effect size (ES) of g=0.40 across all controlled studies and domains. Remarkably, the ES of studies using pre-post designs only is very similar, with g=0.41. The effects are strongest in the domain of cognitive performance with a large and significant ES of g=0.80 for controlled studies. Effect sizes are smaller but still significant in the domains of **resilience** measures (g=0.36) and **stress** measures (g=0.39). Non-significant ES for measures of emotional problems (g=0.19) and third-person ratings (g=0.25).	
Maggin & Johnson, 2014	Students aged 8 to 15 years old	CBT intervention (FRIENDS program)	Students categorized as being at low risk for anxiety disorders demonstrated decreased levels of anxiety at post-test. The ES (Hedges' g) was small (– 0.26) but statistically significant. The highest statistically significant decrease in level of anxiety for low risk students was found for follow-up measurements that occurred up to 12 months post-intervention, with a small to medium ES of -0.31. Studies of low risk students that included follow-up measurements at 12 months post-intervention were not statistically significant and showed a small ES of -0.09. However, findings were not maintained when low quality studies were removed from the analysis.	

30. Tanner-Smith EE, Durlak JA, Marx RA. Empirically Based Mean Effect Size Distributions for Universal Prevention Programs Targeting School-Aged Youth: A Review of Meta-Analyses. Prevention Science [Internet]. 2018 Nov [cited 2019 July 26]; 19(8):1091-1101. Available from: https://www.ncbi.nlm.nih.gov/pubmed/30136245				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: School-age youth (ages 5-18)	**Date range for review:** 1986-2015	**# of studies included:** 74 in meta-analyses		
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: Mean age of participants in the meta-analyses included in overall meta-analysis ranges from 10.44 to 16 years old. Mean age of overall meta-analysis was 12.33 with a standard deviation of 1.66.		**Hi-Level Findings:** All programs: Across all prevention programs included in the meta-analyses (i.e., regardless of program target), programs had the largest posttest effects on knowledge (P_{25} [25th percentile] = 0.25, Median = 0.40, P_{75} [75th percentile] = 0.57), and social competence outcomes (P_{25} = 0.19, Median = 0.23, P_{75} = 0.57). Conversely, the smallest effects were reported for substance use (P_{25} = 0.05, Median = 0.07, P_{75} = 0.11), marijuana use (P_{25} = 0.03, Median = 0.09, P_{75} = 0.13), tobacco use (P_{25} = 0.04, Median = 0.10, P_{75} = 0.16), and alcohol use outcomes (P_{25} = 0.05, Median = 0.10, P_{75} = 0.15). The distribution of the mean effects varied substantially across the different outcome domains. Externalizing Prevention Programs: Fifteen meta-analyses (n_{es} = 31) examined the effect of universal externalizing prevention programs for youth. These programs had the largest average posttest effects on knowledge (P_{25} = 0.48, Median = 0.72, P_{75} = 0.98), internalizing (P_{25} = 0.43, Median = 0.43, P_{75} = 0.43), and victimization outcomes (P_{25} = 0.19, Median = 0.21, P_{75} = 0.27). Average program effects were smaller for other measures of externalizing behavior such as aggressive/disruptive behavior, antisocial behavior, general delinquency, and other conduct problems. The distributions of externalizing prevention program effects tended to be uniformly distributed within outcome type. Internalizing Prevention Programs: Eleven meta-analyses (n_{es} = 26) examined the effect of internalizing prevention and promotion programs for youth. These programs exhibited the largest beneficial average posttest effects on social competence (P_{25} = 0.00, Median = 0.51, P_{75} = 0.78), which were notably higher than effects on measures of internalizing behavior (P_{25} = 0.09, Median = 0.12, P_{75} = 0.44), and self-concept outcomes (P_{25} = 0.03, Median = 0.09, P_{75} = 0.70). The distributions of internalizing program effects tended to be positively skewed. Prosocial Promotion Programs: Six meta-analyses (n_{es} = 45) examined the effect of prosocial promotion programs for youth. Prosocial promotion programs had the largest average effects on self-concept (P_{25} = 0.46, Median = 0.58, P_{75} = 0.69), academics (P_{25} = 0.26, Median = 0.31, P_{75} = 0.46), and social competence outcomes (P_{25} = 0.20, Median = 0.25, P_{75} = 0.59). Most mean effects for prosocial behavior promotion programs fell within the 0 to 0.50 range; however, the distribution of effects was wider for social competence outcomes. Furthermore, prosocial programs obtained the highest average effects of all prevention programs on academic outcomes (Median = 0.31) and higher average effects on externalizing behavior outcomes than programs targeting externalizing problems (Median = 0.24 vs Median = 0.16, respectively).	As noted by author: Author notes that these programs do not address all aspects of youth adjustment and well-being (did not include physical health or academic achievement outcomes). Author notes that one may expect a higher magnitude of effects for indicated prevention programs, and thus focusing on primary prevention programs may limit effects observed for these programs. Author also recommends that environmental- or policy-level interventions should not be neglected, which this review does. Meta-analysis also focused on summarizing the distribution of mean effect sizes as reported in prior meta-analyses, but not those effects reported in the individual studies included in the meta-analyses. Many meta-analyses included focused on a single outcome, and many also failed to report mean effect sizes separately for important subgroups of youth (e.g., age, race, ethnicity, gender, sexual orientation). Few meta-analyses examined outcomes at follow-up periods.	

Intervention Type/Name/Df--**Overall:** Universal drug prevention programs, universal externalizing prevention programs, Universal internalizing programs, universal sexual behavior prevention programs, universal prosocial promotion programs.	**Databases searched for review:** Dissertations and Theses (U.S., UK, and Global), ERIC, PsycINFO, PQ Criminal Justice, PQ Education, PQ Family Health, PQ Health & Medical Complete, PQ Health Management, PQ Nursing & Allied Health, PQ Psychology, PQ Science, PQ Social Science, Social Services and Abstracts, Sociological Abstracts, Campbell Collaboration, Cochrane Collaboration.	**Adolescent-Specific Findings:** (see above)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see above)	**Review inclusion** criteria—Focus on study methodology: Meta-analyses had to focus on universal or primary prevention programs aimed at preventing problematic behavior or emotional problems among youth. Those that contained a mix of prevention program types were only included if results were presented separately for the universal prevention programs. Only psychosocial interventions that involved direct work with school-age youth were eligible. Meta-analyses that include studies with older/younger participants were only included if they presented results for youth aged 5-18 separately. Meta-analyses had to report at least one mean effect size on an attitudinal, behavioral, or mental health outcome measure. Meta-analyses must be available in English.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: academics, social competence, self-concept, victimization, violence/abuse, externalizing, internalizing, sexual behavior, substance use, alcohol use, tobacco use, marijuana use, attitudes to drugs, prosocial attitudes, knowledge	**Review exclusion** criteria—Focus on study methodology: Meta-analyses of prevention programs whose primary aim was to change physical health or educational outcomes were excluded. Interventions that focused on changing laws or policies were excluded.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see above)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA Statement			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools, communities **Country(ies):** Global **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Community				

31. Taylor, Oberle, Durlak & Weissberg, 2017.Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. https://doi.org/10.1111/cdev.12864. https://dpi.wi.gov/sites/default/files/imce/sspw/pdf/Taylor_et_al_-_FINAL_document_6_17_2017_2.pdf. Supporting information at https://onlinelibrary.wiley.com/doi/abs/10.1111/cdev.12864.				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All age/developmental groups included: K-12, mean age 11	**Date range: 1981-December 2014**	**# of studies included overall:** 82, 11 on adolescents	The SEL interventions varied in general procedures, which of the core SEL competencies were targeted, and what outcomes were used to assess program impact. However, most incorporated the 4 SAFE (sequenced, active, focused, explicit) program features suggested as best practices for SEL implementation. Age has significant covariates (e.g., duration of program was higher for lower age groups). Analyses by race and SES were limited by missing data. Levels of effectiveness could not be studied by program components.	Of the studies reporting on the following variables: 41.1.% of students were from low SES households; 45.85% were students of color
Age/developmental group included relevant to H.S. aged teens ages 13-18 - specify by age if author doesn't aggregate by relevant age group – 14-18-year-olds	**Databases searched:**	**High-level findings:** Statistically significant Mean effect sizes for 7 outcomes ranged from g=.13 to .33. Specifically, for PSEWB outcomes of SEL skills (.23), SE Latitudes (.13), positive social behavior (.13), emotional distress (.16). (all grades) Across age groups, social-emotional skills predicted primary outcomes, but social-emotional attitudes did not. Across age groups, no differences were found by student diversity profile, SES, urbanicity, or country of intervention (U.S. v. abroad). Higher total sample attrition at follow-up was associated with lower ES.		
Intervention(s) Type/Name—Overall: Universal school-based SEL program. Most were classroom-based skills development only. A minority also had additional components such as efforts to enhance classroom or school climate, various school-wide initiatives, or parent involvement.	**Review inclusion criteria** Studies had to have collected follow-up data from intervention and control groups 6 months or more postintervention; contained sufficient data to calculate an effect size on at least one outcome	**13-18-year-old (or similar) Teen specific findings: (or see Teen Table below):** Across outcomes, the mean effect size for 14-18-year-olds was g=.18, significantly different from the ES for children (.27) or early adolescents (.12), when considered alone, but not in the meta-regression including age and attrition.		
Intervention(s) Type/Name--examined for 13-18-year-olds or equivalent (specify): not provided separately.	**Review exclusion criteria** See inclusion criteria			
Outcomes examined overall --include all but highlight PSWEB outcomes: **positive social behavior**; academic success; conduct problems; **emotional distress**; drug use. Social and emotional assets (skills and attitudes) were additional measured outcomes and used as predictors of the primary outcomes. Additional outcomes (peer and family relationships, mental health adjustment) were measured across all age groups.	**Guidance used to structure review (e.g., PRISMA, GRADE):** Based on process used by Durlak, 2011 (previous review of SEL)			
Outcomes examined for 13-18-year-olds or equivalent—include all but highlight PSEWB: overall ES				
Outcomes examined for social/built/structural environments and/or people surrounding 13-18-year-olds (global/cultural, national, community, interpersonal level)--Specify outcome and for whom it is measured: Not included (explicitly)				
Setting(s): Schools **Country(ies):** U.S and other **State/region/locality(ies) (even within other countries):** not reported **Level (e.g., global/cultural, national, community, interpersonal):** school				

32. Tillmann S, Tobin D, Avison W, Gilliland J. Mental Health Benefits of Interactions with Nature in Children and Teenagers: A Systematic Review. Journal of Epidemiology and Community Health [Internet]. 2018 Oct [cited 2019 Aug 27]; 72(10):958-966. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29950520				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: children and teenagers (0-18 years)	**Date range for review:** 1990-2017	**# of studies included:** 35	As noted by author: The subjective nature of observational studies does not allow for a clear 'yes' or 'no' answer to some questions designed for intervention-based studies. Furthermore, papers based on qualitative methods were not included in this review due to the difficulties of comparing findings among studies. Their inclusion may have provided for a more fulsome understanding of the benefits of nature for the mental health of children and teenagers. Authors were unable to complete a meta-analysis with the 35 studies collected due to the heterogeneity of the measures used in each study. The majority of the studies had fairly small sample sizes and were from Europe, North America and other developed regions which can also limit the generalizability of the findings.	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: (see table)		**Hi-Level Findings:** This review showed significant positive findings on the benefits of nature for all mental health outcomes; however, **ADD/ADHD, overall mental health, stress, resilience and HRQOL were the only outcomes that demonstrated more positive significant findings over non-significant findings**. Several outcomes (emotional well-being, self-esteem, depression) were associated with a greater number of non-significant findings than positive significant findings, supporting the inconclusive nature of the evidence reported in previous reviews. Clearly additional research is needed, with more rigorous study designs, to confirm the benefits of nature interactions and mental health outcomes.		
Intervention Type/Name/Df--**Overall:** Interventions that include seek to improve accessibility, engagement, or exposure to nature (e.g., Wilderness Therapy programs, Outdoor Adventure Programs, Green and Blue Spaces, etc.)	**Databases searched for review:** PubMed, SCOPUS, PsycINFO, Geobase, ProQuest, SPORTDiscus, Sociological Abstracts, Leisure and Tourism Database, Physical Education Index, EMBASE	**Adolescent-Specific Findings:** (see table)		
Intervention Type/Name/Dfs—**examined for 13-18 year-olds or equivalent (specify)**: (see table)	**Review inclusion** criteria—Focus on study methodology: To be included, studies must 1) include children and teenagers aged 18 and under; 2) involved an intervention that incorporated an element of nature; 3) assess outcome variables that include a component of mental health; and 4) be of a quantitative design.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Emotional well-being, attention deficit disorder/ hyperactivity disorder (ADD/ADHD), overall mental health, self-esteem, stress, depression, resilience.	**Review exclusion** criteria—Focus on study methodology: Exclusion from the review was based on a failure to meet the inclusion criteria detailed above.			
Outcomes examined for **13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: (see table)	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			
Outcomes examined: **Social/built environments and/or people surrounding 13-18 year-olds** (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools, woodlands, communities **Country(ies):** U.S., U.K., Canada **State/region/locality(ies) (even within other countries):** not reported **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** School, Community, Individual				

TEEN-SPECIFIC FINDINGS				
AUTHOR	*TEEN AGE GROUP IN STUDY*	*INTERVENTION*	*OUTCOME*	*NOTES*
Bowen, 2016	13-16	Outdoor Adventure	Significant improvement ($p<0.05$) in one measure of mental health (psychological well-being) at the 6-12 month follow after 15 programming days during a 10-12 week outdoor adventure program. No significant effect on overall mental health or psychological distress at the 6-12 month follow up mark. No significant effect on all measures of mental health immediately post-intervention.	Poor quality rating.
Bowen, 2016	12-18	Wilderness Therapy	No significant effect from pre-post after the 10 week Wilderness Therapy program on emotional functioning in clinical and non-clinical children ages 12-18. No significant effect after a 3 month follow-up. No significant effect from pre-post on suicidality. There was a statistically significant reduction ($p<0.1$) at 3 month follow up on suicidality. Statistically significant improvement ($p <0.1$) from pre- to post-intervention in 1 of 4 subscales of self-esteem (social). This effect was still observed at the 3 month follow up mark ($p<0.1$). Statistically significant improvement ($p<0.1$) from pre- to post intervention in clinically depressed children. No significant effect at the 3 month follow up on clinically depressed children. No significant effect from pre- to post intervention or at 3 month follow up on non-clinically depressed children. Statistically significant improvement in resilience from pre- to post-intervention ($p<0.1$).	Fair quality rating.
Cammack, 2002	12-18	Horticulture Program	No significant effect after the 10 week program on self-esteem	Fair quality rating.
Clark, 2004	13-18	Wilderness Therapy	Significant effect ($p<0.05$) on clinical syndromes scales after the 21-day Wilderness Therapy program.	Good quality rating.
Feda, 2015	12-15	Parks	Percentage of park area within a 800m buffer of home predicted perceived stress ($p<0.05$), even when controlled for SES and physical activity.	Fair quality rating.
Greenwood, 2016	16-18	Exposure to the Outdoors	Positive significant increase ($p < 0.01$) in positive affect after time spent in outdoor environment, reduction in positive affect after time spent in indoor environment. No significant effect of environment on attentiveness. Attention scores were reduced significantly more ($p < 0.01$) after 20 minutes spent in the outdoor environment than in the indoor environment.	Poor quality rating.
Gubbels, 2016	12-15	Greenery	No significant effect of changes of perceived greenery on depressive symptoms.	Fair quality rating.
Harper, 2007	13-18	Wilderness Therapy	12 months following the 21 day Wilderness Therapy there was a significant improvement on suicidal thoughts/ ideation ($p<0.01$). No significant effect 2 months following Wilderness Therapy on other components of mental health.	Fair quality rating.
Hinds, 2011	12-15	Woodland Education	No significant effect of the 2-5 night Woodland Education program on self-esteem.	Fair quality rating.
Huynh, 2013	11-16	Natural Space, Green Space, Blue Space	School surrounding Blue Space had a positive, significant effect ($p<0.05$) on emotional well-being. No significant effect of school surrounding natural or green space on emotional well-being.	Fair quality rating.
Kelz, 2015	13-15	Schoolyard	Greening of the schoolyard saw a significant increase in intra-psychic balance compared to both control schools ($p<0.01$). No significant effect of the greening of the schoolyard on overall well-being.	Fair quality being.

Kuo, 2004	5-18	Green Outdoors	Green outdoor activities after school and on weekends were significantly more helpful ($p < 0.01$) in reducing symptoms than built outdoor or indoor activities. This held for children with and without hyperactivity as well as when activity type was controlled for.	Poor quality rating.
Mutz, 2016	14	Outdoor Adventure	Significant increase in mindfulness ($p<0.05$) from T1 to T2 after a 9 day hike. Significant increase in mean life satisfaction ($p<0.05$) from T1 to T2. No significant effect from the hike on happiness. No significant effect on the stress subscale of worries. Significant decrease ($p<0.05$) in the stress subscale of demand from T1 to T2.	Poor quality rating.
Opper, 2014	Grade 10	Outdoor Adventure Education	Following the 23 day Outdoor Adventure Education program there was a significant effect ($p<0.05$) on mood in grade ten males. 3 months following the program, there was still a significant effect on mood in grade 10 males. Significant effect on stress ($p<0.05$) in grade 10 males post intervention, but no significant effect on stress at 3 month follow up.	Good quality rating.
Ritchie, 2014	12-18	Outdoor Adventure Leadership Experience	No significant effect on mental health scores from pre- to post-intervention to 1 year follow up of the 10 week Outdoor Adventure Leadership Experience. No significant effect on self-esteem scores from pre- to post-intervention to 1 year follow up. At the 1 month follow up there was a significant increase ($p<0.05$) in resilience scores, but scores returned to pre-intervention levels at the 1 year follow up.	Good quality rating.
Romi, 2004	15-18	Wilderness Therapy	No significant effect from the program on self-esteem. No significant difference was found between the groups before and after the program.	Fair quality rating.
Van Den Berg, 2011	9-17	Natural (Wooded) Settings	No significant effect of natural wooded setting on concentration.	Good quality rating.
Van Lier, 2016	12-18	Gardens	Participating in gardening at home was significantly associated ($p<0.05$) with better mental well-being. Also significantly associated ($p<0.05$) with lower levels of depressive symptoms.	Fair quality rating.
Ward, 2016	11-14	Green Space	Time spent in green space was significantly, positively associated ($p<0.05$) with all measures of emotional well-being in children ages 11-14; even when controlled for moderate-to-vigorous physical activity.	Good quality rating.
Whittington, 2016	10-15	Outdoor Adventure	Participation in the Outdoor Adventure Program was associated with a significant increase in resiliency and decrease in emotional reactivity in girls pre- to post-intervention ($p<0.05$). No significant associated between participation and resilience was observed at the 1 month follow up mark.	Good quality rating.

33. Van Genughtsen LV, Dusseldorp E, Massey EK, Van Empelen P. Effective self-regulation change techniques to promote mental wellbeing among adolescents: a meta-analysis. Health Psychology Review [Internet]. 2016 Nov 24 [cited 2019 July 26]; 11(1):53-71. Available from: https://www.tandfonline.com/doi/abs/10.1080/17437199.2016.1252934				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*SYSTEMATIC REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: 12-18 years	**Date range for review:** 1990-2012	**# of studies included**: 40	▪ It would be valuable to repeat the analyses with a larger set of studies. In this meta-analysis, studies indexed in only four online databases were included. ▪ 19 studies used a clustered design. This clustered design was not taken into account in our meta-analyses. ▪ Risk of miscategorization: Large variety in the reporting of change techniques used. For example, several techniques were used relating to coping: coping planning, coping training, coping skills, and relapse prevention. Many studies failed to define such techniques any further and they could not be further defined in the taxonomy. ▪ Existing taxonomies often define SRTs for behaviour change only and were therefore not suitable for this review on mental wellbeing, where emotional regulation is also very important. …**affect regulation was under-represented in existing taxonomies.**	
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: See above.		**Hi-Level Findings**: Self-regulation interventions were found to be small to moderately effective at promoting well-being. Targeting adolescents at high risk for psychological wellbeing could benefit from the SRTs 'asking for social support' and 'monitoring and evaluation', possibly in that order.		
Intervention Overall: Self-Regulation Techniques [SRT][11] which were divided into two categories: Primary interventions = universal, population-based. Secondary interventions = targeted to specific risk groups.	**Databases searched for review:** PubMed, PsycINFO, Web of Science, and Embase	**Adolescent-Specific Findings:** Primary interventions had a small-to-medium effect on **self-esteem** and **internalizing behaviour**. Secondary interventions had a medium-to-large short-term effect on internalizing behaviour and self-esteem. For primary interventions the effect sizes were lower at longer term follow-up, whereas secondary interventions showed that positive outcomes were maintained at longer term follow-up. No significant effects on **externalizing behaviour** were found for either group of interventions. Interventions on average used four out of the nine SRT categories. **For primary interventions, there was not a single SRT that was associated with a greater intervention effect on internalizing behaviour or self-esteem**. In secondary interventions, those including asking for social support had a great effect on internalizing behaviour. Those including monitoring and evaluation had a greater effect on **self-esteem**.		
Intervention examined for 13-18 year-olds or equivalent (specify): See above.	**Review inclusion criteria**: The search was limited to papers written in English, German, or Dutch. (1) described a self-regulation intervention that (2) aimed at improving mental or psychological wellbeing or behaviour and that reported changes in wellbeing (3) and is evaluated in a (quasi) randomised study among (4) adolescents.			
Outcomes overall—include all but highlight PSEWB outcomes: Resilience protective factors: **depressive symptoms, anxiety symptoms,** hyperactivity, conduct problems, **internalizing problems, externalizing problems,** or **general psychological distress.** And improving wellbeing factors.[12]	**Review exclusion**: Studies could not include clinically diagnosed participants (e.g., interventions aimed at adolescents with clinically diagnosed depression). Interventions including such participant samples were excluded from this study. Studies were excluded if they did not report both baseline and post-intervention data.			
Outcomes for 13-18 year-olds or equivalent (specify)—include all but highlight PSEWB outcomes: See above.	**Guidance used to structure review (e.g., PRISMA, GRADE):** Cochrane			
Outcomes for Social/built environments and/or people surrounding 13-18 year-olds (Nation, Community, Interpersonal) **– Specify outcome and for whom/what it is measured:** N/A				
Setting(s): Schools **Country(ies):** Australia, Israel, U.S., Australia, Canada, U.K., Spain, Netherlands, Slovenia, Korea, Hong Kong, Thailand, Mauritius, Iceland **State/region/locality(ies) (even within other countries):** N/A **Level (e.g., national, community/neighborhood, school, family, work, recreation, OST):** school				

34. Yap MBH, Morgan AJ, Cairns K, Jorm AF, Hetrick SE, Merry S. Parents in prevention: A meta-analysis of randomized controlled trials of parenting interventions to prevent internalizing problems in children from birth to age 18. Clinical Psychology Review [Internet]. 2016 Dec [cited 2019 July 26]; 50:138-158. Available from: https://www.ncbi.nlm.nih.gov/pubmed/27969003				
FOCUS OF REVIEW	*REVIEW METHODS*	*RELEVANT FINDINGS*	*REVIEW LIMITATIONS*	*NOTES*
All Age/developmental groups included: Youth aged 0-18 years	**Date range for review:** Inception of databases searched - 2015	**# of studies included**: 51 qualitative, 42 quantitative	As noted by author: It was beyond the scope of the current review to examine mediators of the intervention effects found; authors could not adequately assess the quality of all included trials because of poor reporting; authors also could not assess for moderation by intensity or duration of intervention due to inadequate descriptions of this aspect of intervention programs in about one-third of included trials. Clustering effects were not accounted for in many studies. Findings may not generalize to ethnic minorities or developing countries.	None of the universal interventions involved parents of teens.
Age/developmental groups included relevant to HS aged teens ages 13-18—specify by study if author doesn't aggregate by relevant age group: 3 studies included adolescents. Adolescent ages were not provided.		**Hi-Level Findings**: Compared to controls, parenting interventions reduced child internalizing, depressive, and anxiety symptoms, at a minimum of 6 months after the intervention was delivered. The mean effects were small-very small but comparable to other preventive interventions and could have a substantial public health impact.		
Intervention Type/Name/Df--**Overall:** Randomized controlled trials of parenting interventions to prevent internalizing problems in children	**Databases searched for review:** PubMed, PsycINFO, EMBASE, Cochrane Central Register of Controlled Trials	**Adolescent-Specific Findings:** Two studies focused on reducing teen depressive symptoms found a small but significant effect (combined effect size: -0.119); No effect was found on internalizing symptoms or anxiety symptoms or disorders, or for all 3 outcome types when they were combined.		
Intervention Type/Name/Dfs—**examined for 13-18-year-olds or equivalent (specify)**: Not identified for adolescents.	**Review inclusion criteria—Focus on study methodology:** Studies were included if they a) involved randomized controlled trials with a no-treatment control group, an attention control group (including minimal interventions not intended to be active), or treatment as usual or normal service provision; b) targeted parents or caregivers of children from birth to 18 years; c) involved interventions that aimed to improve child outcomes indirectly through parents as a mediator; d) aimed to improve child internalizing problems through universal, selective or indicated prevention, or secondary prevention; e) evaluated interventions that focused on improving internalizing problems, including internalizing measures, anxiety measures, and depression measures, as a major goal and not merely as a by-product; f) spent the majority of the intervention time with the parents; g) used validated internalizing measures, anxiety measures and depression measures at least 6 months after the intervention ended; and h) were reported in English.			
Outcomes examined **overall—include all but highlight PSEWB outcomes**: Long term child internalizing (including both depression and anxiety) problems.	**Review exclusion criteria—Focus on study methodology:** Studies that evaluated interventions in children with developmental disorders, physical disabilities, medical conditions, or distress about facing medical interventions; interventions that were designed to prevent other outcomes; and interventions that evaluated a dual-component intervention delivered equally to parents and children.			
Outcomes examined for **13-18-year-olds or equivalent (specify)—include all but highlight PSEWB outcomes**: Internalizing symptoms; depressive symptoms and disorders; anxiety symptoms and disorders	**Guidance used to structure review (e.g., PRISMA, GRADE):** PRISMA			

Outcomes examined: **Social/built environments and/or people surrounding 13-18-year-olds (Nation, Community, Interpersonal)** NA **Specify outcome and for whom/what it is measured:** not included				
Setting(s): Parent-focused (whether school- or community-based is not addressed) ***Country(ies):*** *USA, Australia, New Zealand, Europe, Asia* ***State/region/locality(ies) (even within other countries):*** *not reported* ***Level (e.g., national, community/neighborhood, school, family, work, recreation, OST): Family***				

Endnotes

1. PRP is a 12-session program applicable to children aged 10–14 years with its duration ranging from 90 to 120 min per session. The aim of PRP is: a) to target the link between maladaptive cognitions and emotional-behavioral outcomes by challenging students' stable explanatory style and b) to promote goal-setting by combating passive responses (Gillham & Reivich, 2004).
2. OVK is a school-based, depression-prevention program of 16 sessions of 50 minutes each, which has been delivered either as targeted or universal and it is applicable to adolescents aged 12–14 years (Tak et al., 2012). OVK shares the same basis as PRP (Beck, 1979, Ellis, 1962), after being culturally modified in order to be applicable to Dutch teenagers (Tak et al., 2012). In OVK, cognitive distortions, explanatory style, coping and social skills are targeted, while OVK has been administered by school personnel and MHPs.
3. PYD programs build skills, assets, and competencies; foster youth agency; build healthy relationships; strengthen the environment; and transform systems to prepare youth for successful adulthood.
4. Such as: • Social, emotional, behavioral, cognitive, and moral competencies • Clear and positive identity • Strength of character • Self-efficacy • Self-determination • Belief in the future • Positive emotions • Bonding • Positive norms • Opportunities for positive social involvement • Recognition for positive behavior • Spirituality • Resilience • Life satisfaction
5. perceived adjustment/comfort levels in school
6. All girls, except for control group, participated in all interventions
7. Young men overall, including at-risk samples.
8. E.g., samples with subthreshold psychological disorder symptoms, or school samples with students at-risk of academic disengagement.
9. Franco Justo, C. (2010). Mindfulness program for increasing resilience and preventing burnouts in secondary school teachers. Revista Complutense de Educación, 21, 271-288. Mañas, I.M., Justo, C.F., & Martinez, E.J. (2011). Reducing levels of teacher stress and the days of sick leave in secondary school teachers through a mindfulness training program. Clinica y Salud, 22, 121-137.
10. "This is the first systematic review to include a substantial body of studies conducted in high-income (OECD) countries that: A. report the meaningful involvement of local people in decision-making processes, B. report wellbeing-related impacts, and C. were conducted in a community/living environment "
11. An intervention was defined as SRT if it used techniques that were related to behavioral or emotion self-regulation, including goal setting, planning, self-monitoring, feedback, coping, and relapse prevention
12. Improving wellbeing: well-being, quality of life, internalizing and externalizing behavior (e.g., depression or depressive feelings/thoughts/symptoms anxiety and aggressive behavior), self-esteem, (general) self-efficacy, self-perception and self-concept, locus of control, optimistic thinking and hopelessness, positive and negative affect, psychological distress, or resilience.

Moving Policy Upstream to Advance Adolescent Flourishing

Rapid Evidence Review Appendix 6: Excluded Reviews

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With support from Well Being Trust

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Reviews Excluded from the Rapid Evidence Review following Full Text Review

Review	Strategy	Rationale for Exclusion
Akhtar, 2018[1]	Forgiveness Therapy	Interventions were not universally targeted
Aldridge, 2018[2]	School climate interventions	Only relevant study was conducted with 8th graders (not H.S.)
Altafim, 2016[3]	Parent training interventions	Adolescents excluded
Anderson, 2015[4]	Community Coalition-Driven interventions	Only collected measures of health status (e.g., mortality) and lifestyle factors (e.g., dietary habits), no Psychological, Social, and Emotional Well-Being (PSEWB) outcomes.
Anyon, 2018[5]	Youth Participatory Action Research (YPAR)	Only reported types of outcomes rather than findings from studies.
Arango, 2018[6]	Primary preventive interventions	Not a systematic review.
Bailey, 2016[7]	Self-Regulation	Not a systematic review.
Bakker, 2016[8]	Mental Health Smartphone Apps	Not adolescent focused.
Ballard, 2019[9]	Youth Civic Engagement (activism, volunteerism, voting, YPAR; community benefits)	Review, but not systematic review.
Barlow, 2014[10]	Parent training interventions	The only 2 studies that included parents of adolescents and outcomes for adolescents, 1) do not focus on teens; 2) focus on parents of substance-abusing teens (not universal).
Barry, 2013[11]	Mental health promotion interventions in Low- and Middle-Income Countries (LMIC)	2013 publication.
Burgdorf, 2019[12]	Mindfulness Parenting Intervention	Studies of adolescents focused on youth with psychological difficulties or those at risk of developing them (i.e., not universal)
Corcoran, 2018[13]	School-based Social and Emotional Learning (SEL) programs	No adolescent (13-18) studies and lack of direct PSEWB outcomes, also not really a systematic review.
Curran, 2017[14]	Summary of Positive Youth Development (PYD) Programs	Not really a systematic review.
Das, 2017[15]	Interventions for Adolescent Mental Health	2017; most interventions treatment-focused
Dick, 2015[16]	Summary of recommendations to promote adolescent health	Not a systematic review.
Douglas, 2019[17]	Young people mentoring their peers	Copy not available. Unclear if *Mental Health Practice* is a peer-reviewed journal.[18]
Dray, 2017[19]	School-based resilience promotion programs	Not a systematic review (though a very useful single study).
Erbe, 2015[20]	Mindfulness meditation	Pre-2018; updated in Dunning et al., 2019; O'Connor et al., 2018; Skeen et al., 2019; Soulakova, 2019; and Klingbeil et al., 2018 for teachers

Review	Strategy	Rationale for Exclusion
Greenberg, 2017[21]	SEL advocacy paper	Not a systematic review.
Gus, 2015[22]	Emotion coaching	Not a systematic review.
Hagen, 2019[23]	Yoga	Not a systematic review.
Haberland, 2017[24]	Adolescent Girl Programs	Review focused on implementation factors (e.g., multicomponent v single component; multi-level v single level; saturation), not program effectiveness.
Hodder, 2017[25]	School-based resilience interventions	Only measured alcohol, tobacco, and substance use with no measures of PSEWB.
Institute of Medicine and National Research Council, 2015[26]	Family focused prevention interventions	Workshop report (not a systematic review), focus on scaling and not on effectiveness of intervention.
Khalsa, 2016[27]	Yoga	Does not assess measures of PSEWB.
Khanlou, 2014[28]	Resilience promotion programs	Not a systematic review.
Kluve 2017[29]	Labor market interventions Active Labour Market Programmes (ALMPs): specifically, training and skills development, entrepreneurship promotion, employment services and subsidized employment.	The review considers psychosocial outcomes to be outputs and says: "In the interests of a well-defined intervention description, those activities and outputs that are not strictly linked to labour market effects have been omitted. Similarly, a narrow focus has been adopted on individual-level labour market outcomes, leaving aside other potential side effects, such as increased psychosocial well-being.
Langford, 2014/2015[30]	WHO Health Promoting Schools Framework	Only 2 studies relevant to mental well-being were conducted with 8th graders. In general, the Framework is for primary schools.
Larouche, 2018[31]	Active School Transport (AST)	Not enough adolescent studies to draw meaningful conclusions, lack sufficient sample size and properly powered studies are heavily focused on elementary school students.
Lubans, 2016[32]	Summary of mechanisms	Review of mechanisms for how physical activity may impact cognitive and mental health in youth, not a review of physical activity interventions.
Malti, 2016[33]	School-based interventions to promote empathy related responding in children and adolescents.	Adolescents not included. 35 of 36 studies included did not include participants beyond 6th grade (the sole remaining study did not include participants beyond 8th grade).
Mansfield, 2018[34]	Outdoor recreation for families to promote subjective wellbeing.	Only one study included teens as part of 7-16 y.o. age group.
Mewton, 2018[35]	alcohol and drug use prevention programs	Only measured alcohol, tobacco, and substance use with no measures of PSEWB.
Morrish, 2018[36]	Emotion regulation interventions	Not a systematic review.

Review	Strategy	Rationale for Exclusion
Newton, 2017[37]	Combined student-and-parents-based alcohol, tobacco, and other substance use prevention programs	Only measured alcohol, tobacco, and substance use with no measures of PSEWB.
Onnis, 2018[38]	Social and emotional wellbeing intervention	Single study, not a systematic review.
Onrust, 2016[39]	School-based alcohol, tobacco, or other substance use prevention programs	Only measured alcohol, tobacco, and substance use with no measures of PSEWB.
Rhodes, 2006[40]	Model for the influence of mentoring relationships	Not a systematic review.
Rose-Clarke, 2019[41]	Peer-facilitated community-based interventions in low- and middle-income countries.	No universal interventions with PSEWB outcomes for high-school-aged teens.
Sanders, 2014[42]	Triple P (Positive Parenting Program)	Included a mix of universal, targeted, and treatment interventions in its analysis.
Sapthiang, 2019[43]	Advocacy for a Mindfulness/Health Promotion Approach in schools	Not a systematic review.
Saunders, 2017[44]	Population-based survey assessing differences between pet and non-pet owners	Not an PSEWB intervention nor a systematic review.
Slopen, 2018[45]	Housing Assistance	No study involving adolescents was interventional.
Smedler, 2015[46]	Externalizing prevention programs across a range of settings and delivery methods	Only 5 trials included universal interventions, none of which included adolescents.
Stuart, 2017[47]	Advocacy for whole-school mindfulness focus	Not a systematic review.
Tinner 2018[48]	Public health interventions targeting multiple risk behaviors	Only one study looked at PSEWB outcome (social and emotional skills). Focus of analysis was on SES differences.
Turner, 2014[49]	Survey of students regarding bullying/peer victimization	Not a systematic review.
Van Breda, 2018[50]	Review of resilience-assessing studies	No PSEWB interventions, an assessment of predictors of positive PSWEB and resilience-enablers in South African Children/Youth.
Vermeulen-Smit, 2015[51]	Family interventions for drug use prevention	Only measured alcohol, tobacco, and substance use with no measures of PSEWB.
Victor, 2018[52]	Loneliness interventions	No adolescent studies.
Waddington, 2014[53]	Farmer Field Schools	No adolescent findings included.
Waid, 2019[54]	Theory of Positive Youth Development	Not a systematic review.
Waters, 2016[55]	Meditation interventions in schools/Contemplative Education	Pre-2018 with more recent relevant review.
Yeager 2017[56]	Social and Emotional Learning Programs for Adolescents	Not a systematic review, but a narrative commentary invoking selected studies.

Endnotes

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2. Aldridge JM, McChesney KR. The relationships between school climate and adolescent mental health and wellbeing: A systematic literature review. International Journal of Educational Research [Internet]. 2018 Mar [cited 2019 July 26]; 88:121-145. Available from: https://doi.org/10.1016/j.ijer.2018.01.012
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