

**HELPING
ADOLESCENTS
THRIVE**



Guidelines on mental health promotive and preventive interventions for adolescents

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Guidelines on mental health promotive and preventive interventions for adolescents

Guidelines on mental health promotive and preventive interventions for adolescents: helping adolescents thrive

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Foreword

Adolescence is one of the most rapid and formative phases of human development. During this time adolescents develop knowledge and social-emotional skills and acquire attributes and abilities that are important for assuming adult roles and active contribution to society. Up to 50% of all mental health conditions start before the age of 14 years and up to one in five adolescents experience a mental disorder each year. Suicide is one of the three leading causes of death among older adolescents. In turn, poor adolescent mental health is associated with a range of high-risk behaviours, including self-harm, tobacco, alcohol and substance use, risky sexual behaviours and exposure to violence, the effects of which persist throughout the life-course and have serious implications.

The COVID-19 pandemic has severely impacted the well-being of young people and has put them at an increased risk of suicide, substance use and other mental health problems. Young people themselves report that their greatest concern is the toll that the pandemic is taking on their mental health.

The World Health Organization (WHO) is committed to support Member States in promoting mental health and well-being towards achievement of target 3.4 of the Sustainable Development Goals (SDGs). This guidance, aimed at informing adolescent mental health and preventing mental health conditions, self-harm, substance use and other high-risk behaviours, is the first product of the Helping Adolescents Thrive (HAT) package that will be complemented by a series of implementation tools such as the United Nations Children's Fund (UNICEF)/WHO HAT toolkit on programmatic guidance. The HAT package will support the operationalization of the Global Strategy for Women's, Children's and Adolescents' Health (2016–2030), which recognizes adolescents as being central to achieving the SDGs, and facilitate country action in line with the recommendations of the *Global accelerated action for the health of adolescents (AA-HAI): guidance to support country implementation*, developed by WHO in partnership with other United Nations organizations. It will also contribute to the implementation of WHO's comprehensive *Mental health action plan 2013–2020* (which has been extended to 2030), which identifies child and adolescent mental health as a priority area.

This guidance is a milestone for translating opportunities for mental health promotion and disease prevention into action. It provides evidence-based recommendations on promotive and preventive psychosocial interventions for adolescents aged 10–19 years, which can be implemented in schools, health care settings, communities or through digital platforms. Particular attention is given to adolescents who are at increased risk for mental disorders or self-harm, and adolescents who present early signs and/or symptoms of emotional and/or behavioural problems. The HAT guidelines will thus support improved adolescent well-being and functioning, and help to reduce suffering due to mental health conditions and self-harm in adolescents.

We encourage governments, education, health and other service planners, along with young people and their families, to use these guidelines as a tool for promoting adolescent mental health and well-being.

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Executive summary

Background

The need to focus on the mental health of adolescents is gaining increasing recognition as the global community looks to achieve the Sustainable Development Goals (SDGs), in particular SDG 3: "Ensure healthy lives and promote well-being for all at all ages" and SDG 10: "Reduce inequalities within and among countries" (1). With adolescents comprising 16% of the global population, it is vital to address the main threats to their health in order to achieve the SDG targets (2).

Mental health conditions account for a considerable proportion of the global disease burden during adolescence and are the leading cause of disability in young people. Up to half of all mental health conditions start before the age of 14 years. Suicide is one of the three leading causes of death among older adolescents (3). Poor mental health in adolescence portends a range of high-risk behaviours, including self-harm, tobacco, alcohol and other substance use, risky sexual behaviours and exposure to violence, the effects of which persist and have serious implications throughout the life-course (4, 5).

There are multiple opportunities for health promotion and disease prevention in adolescence, which could benefit young lives in the short and long term. This stage is deemed as one of the optimal timeframes for intervention, given the neuroplasticity evident in adolescence and the opportunity to step in at a time when the majority of mental health conditions and risky behaviours have their onset (3).

Aim, scope and target audience

These *Guidelines on promotive and preventive mental health interventions for adolescents: helping adolescent thrive* (HAT guidelines) provide evidence-informed recommendations on psychosocial interventions to promote positive mental health and prevent mental disorders among adolescents. These guidelines, the UNICEF/WHO HAT toolkit and other related implementation tools aim to support evidence-informed programming to achieve that goal. The HAT guidelines have been prioritized by WHO as one of its global public goods for health.

The guidelines are based on evidence from studies of interventions delivered to 10–19 year-olds, with particular attention to: (i) universal interventions delivered to unselected adolescents; (ii) targeted interventions delivered to adolescents who are known to be at increased risk of mental disorders or self-harm, because of exposure to specific adversities (violence, poverty and humanitarian emergencies), chronic illness (HIV/AIDS) and/or particular life circumstances (adolescent pregnancy and/or parenthood); and (iii) indicated interventions delivered to adolescents who present early signs and/or symptoms of emotional and/or behavioural problems but do not have a formal diagnosis of an emotional and/or behavioural disorder. In reviewing the evidence, the primary outcomes of interest were improved well-being and functioning, reduced symptoms and incidences of mental disorders, and reduction in self-harm among adolescents. Other outcomes of interest included reduced risky behaviours (substance use and aggression), improved school retention, and healthier sexual and reproductive behaviours.

The primary target audience of the guidelines includes national policy-makers, planners, and managers of government and nongovernmental health care programmes, along with people working in international health and development agencies.

Guidelines development methodology

The development of the guidelines conformed to standard WHO procedures for developing guidelines (6). The diagram below shows the seven steps involved in the development process.



Step 6 involved using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to assess the quality of the evidence, with reference to the study design, risk of bias, inconsistency, indirectness, imprecision and risk of reporting bias. The certainty of the evidence was accordingly characterized as high, moderate, low or very low. The GRADE profiler software (GRADEPro) was used to prepare summary tables. The final evidence review report was presented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist and the GRADE Evidence to Decision framework for each PICO question. During Step 7, the GDG followed the standard WHO procedure to develop recommendations based on the evidence review (6). Members considered the relevance of the recommendations for the various adolescent groups and the balance of benefit and harm of each intervention. They took into account values and preferences, costs and resource use, along with other practical issues of relevance to health care providers in low- and middle-income countries (LMICs).

In order to make a strong recommendation, the GDG members needed to be confident that the desirable effects of the intervention outweighed any undesirable effects. When the GDG was uncertain about the balance between the desirable and undesirable effects, the members issued a conditional recommendation. Strong recommendations imply that most adolescents would want the intervention and should receive it, while conditional recommendations imply that different choices may be appropriate.

Key questions

The GDG considered and discussed the available evidence and other relevant information in relation to the eight key questions listed below.

1. Should psychosocial interventions be considered for all adolescents to improve their positive mental health, to prevent mental disorders, self-harm and suicide, and to reduce risky behaviours?
- 2a. Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, violence) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?
- 2b. Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, extreme poverty) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?
- 2c. Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, humanitarian emergencies) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?
3. Should psychosocial interventions be considered for pregnant adolescents and adolescent parents to promote their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?
4. Should psychosocial interventions be considered for adolescents living with HIV/AIDS to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?
5. Should psychosocial interventions be considered for adolescents with emotional problems in order to prevent mental disorders (including progression to diagnosable mental disorders) and to prevent self-harm and/or other risky behaviours?
6. Should psychosocial interventions be considered for adolescents with disruptive/oppositional behaviours in order to prevent conduct disorders, self-harm and/or other risky behaviours?

Summary of recommendations

Based on the evidence synthesis and Evidence to Decision frameworks, the GDG developed five recommendations for mental health promotive and preventive interventions for adolescents, as follows.

Recommendation A

Universally delivered psychosocial interventions should be provided for all adolescents. These interventions promote positive mental health, as well as prevent and reduce suicidal behaviour, mental disorders (such as depression and anxiety), aggressive, disruptive and oppositional behaviours, and substance use.

Strength of recommendation: Strong.

Certainty of evidence: Low.

Important remarks: Based on available evidence, interventions should cover social and emotional learning, which may include components such as: emotional regulation, problem-solving, interpersonal skills, mindfulness, assertiveness and stress management (7).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made despite the low certainty of evidence thanks to the relative consistency of the study results and the fact that significant benefits substantially outweighed potential harms. In addition, considerations about values, feasibility and cost-effectiveness further supported the recommendation. Universal interventions in schools may be easier to implement and less likely to cause stigmatization compared to interventions that require screening. When delivered in schools, interventions may help to reach a large proportion of adolescents and address a wide range of risk factors while providing basic skills to promote mental health and prevent risky behaviours.

Recommendation B

Psychosocial interventions should be provided for adolescents affected by humanitarian emergencies. These interventions are particularly beneficial for preventing mental disorders (depression, anxiety and disorders related specifically to stress) and may be considered for reducing substance use in these populations.

These interventions are particularly beneficial for preventing mental disorders (depression, anxiety and disorders related specifically to stress) and may be considered for reducing substance use in these populations.

Strength of recommendation: Strong for reducing symptoms of and/or preventing mental disorders (depression, anxiety and disorders related specifically to stress). Conditional for substance use.

Certainty of evidence: Low.

Important remarks: Past and continuing support to adolescents exposed to humanitarian emergencies includes a broad range of psychosocial interventions. This reflects the heterogeneous nature of experiences involving emergency events. It is therefore important to interpret study findings with caution. Available evidence indicates that stress management, relaxation strategies and care for the implementer's well-being are the intervention components most associated with effectiveness. For adolescents with high levels of trauma exposure, trauma-focused cognitive-behavioural therapy (CBT) has shown positive effects on reducing symptoms of depression, anxiety and stress (8, 9). Group-based CBT interventions have shown positive effects on the symptoms of other adolescents exposed to stressful events (10).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made for psychosocial interventions to reduce symptoms of mental disorders, in spite of the low certainty of evidence. The reason was that the clinically relevant anticipated benefits outweigh potential harms. Furthermore, important values, equity and feasibility considerations suggest that programmes to prevent mental illness should give priority to adolescents exposed to humanitarian emergencies. The evidence supports the notion that all adolescents should benefit from universally delivered psychosocial interventions. The high prevalence of mental disorders among adolescents exposed to humanitarian emergencies, and the huge treatment gap in those settings, make the case for implementing psychosocial interventions with this population even more compelling. However, it is important to consider the adolescents' profile and exposures, given the heterogeneity of experiences and circumstances.

Most of the studies were conducted in LMICs, and a third of the studies investigated interventions delivered by non-specialists. As such, the findings are directly relevant to the settings where most of the adolescents exposed to humanitarian emergencies live.

Recommendation C

Psychosocial interventions should be considered for pregnant adolescents and adolescent parents, particularly to promote positive mental health (mental functioning and mental well-being) and improve school attendance.

Strength of recommendation: Conditional.

Certainty of evidence: Low.

Important remarks: Based on available evidence, cognitive behavioural skills-building programmes may be considered for pregnant adolescents and adolescent mothers (11).

Recommendation D

Indicated psychosocial interventions should be provided for adolescents with emotional symptoms.

Strength of recommendation: Strong for reducing symptoms of depression/anxiety and/or preventing mental disorders (depression and anxiety) and promoting positive mental health. Conditional for improving school attendance.

Certainty of evidence: Very low.

Important remarks: Based on the available evidence, group-based CBT may be considered for adolescents with emotional symptoms (12).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made to reduce symptoms of depression and/or anxiety and/or prevent mental disorders (depression and anxiety), as well as to promote positive mental health in adolescents with emotional problems. This was in spite of the very low certainty of evidence. The reason is that the benefits outweigh potential harms. Additionally, considerations about important values, equity and cost-effectiveness justify investing in interventions for this at-risk group. Poor mental health among adolescents is a key risk factor for physical and mental health issues later in life. Early intervention with adolescents who are already displaying emotional problems has proved crucial in preventing the progression of mental health problems and optimizing health and life trajectories.

Recommendation E

Indicated psychosocial interventions should be provided for adolescents with disruptive/oppositional behaviours. These interventions reduce aggressive, disruptive and oppositional behaviours, prevent mental disorders (depression and anxiety) and promote positive mental health. The interventions should be delivered with caution to avoid increasing substance use among adolescents with disruptive and oppositional behaviours.

Strength of recommendation: Conditional.

Certainty of evidence: Very low.

Important remarks: According to available evidence, effective psychosocial interventions for adolescents at risk of, or diagnosed with, conduct disorder often include: training for parents, based on social learning approaches; and social-cognitive problem-solving and interpersonal skills training for the adolescents. They may also include multimodal interventions for adolescents and their parents, based on a social learning model (13).



HELPING ADOLESCENTS THRIVE

Introduction

Background

As adolescents transition from childhood to adulthood, they undergo a number of significant physical, social and psychological changes (3). These include rapid neurological development and associated vulnerability to a range of positive and negative influences (14). Issues such as poverty, conflict, community violence, forced migration, gender inequality and humanitarian emergencies can increase the likelihood of a range of adverse experiences. Factors such as early and forced marriage, gender-based violence, adolescent pregnancy, poor nutrition, noncommunicable and infectious diseases and dropping out of school can predispose individuals to mental health conditions. The more risk factors adolescents are exposed to, the greater the potential impact on their mental health (14).

Young people face increasingly complex social, cultural and economic environments with growing challenges, including increases in forced displacement, migration, unstable families, income inequalities, rising levels of mental health problems and violence (15). Mental health conditions account for a considerable proportion of the global disease burden during adolescence and are the leading cause of disability in young people. Up to 50% of all mental health conditions start before the age of 14 years. Suicide is one of the three leading causes of death among adolescents (3). Poor adolescent mental health portends a range of risky behaviours, including self-harm, tobacco, alcohol and other substance use, risky sexual behaviours and violence, the effects of which persist throughout the life-course.

Inequities, including those linked to poverty and gender, shape all aspects of adolescent health and well-being. Young disadvantaged people from minority and migrant communities are affected disproportionately, with poorer mental health outcomes and higher rates of unemployment and early school leaving. Females, particularly young girls, face double the risk of common mental disorders

compared to males (16). Along with this, depression is also reported to be more persistent in women than men (17). This higher prevalence of common mental health illnesses also reflects the unmet need for mental health treatment in women (18). Sociocultural factors, such as lower education, poverty, exposure to domestic violence and abuse and low decision-making power tend to increase the risk of depression in girls and women (19).

Psychological distress related to reproductive issues (such as menstruation-related hormonal fluctuations, premarital or unwanted pregnancies, abortions, miscarriages, sexually transmitted infections, lack of control over contraceptive use, surgery, or removal of reproductive organs, fistula and infertility) also play a role in intensifying girls' vulnerability to mental illness (20, 21). Adolescent parenthood is associated with a range of adverse outcomes for young mothers, including mental health problems such as depression and alcohol and other substance use. Adolescent mothers are also more likely to be impoverished and to reside in socially and economically disadvantaged communities and families than adult mothers. These circumstances can adversely affect maternal mental health, parenting, growth and development outcomes for their children, and increase the risk of child maltreatment. On the other hand, mental health conditions in male adolescents put them at high risk of suicide, conduct disorder, alcohol and substance use, and interpersonal violence (22).

A wide range of major structural or societal factors put adolescents, and/or specific subgroups of adolescents, at risk of suboptimal mental health and mental health disorders. Relationships and attachments with parents, peer relationships and connectedness with school and other community organizations play a vital role in the mental health and well-being of adolescents (23). Poverty, migration, contrasts between adolescents' experiences and their aspirations (which are sometimes fuelled by images seen in the media), and gender norms also influence adolescent mental health. Adolescence is a time of transition between childhood and adulthood in which young people deal with fertility, sexuality and rapid puberty changes that lead to concerns about body image and appearance. A host of societal norms can put adolescents at increased risk of mental health disorders. Among these norms are early and forced marriage (usually of adolescent girls), and sexual and intimate partner violence (usually against adolescent girls and young women). They also include social norms involving other types of risk, such as the use of alcohol and other substances and unsafe sexual practices (especially among boys).

From survive and thrive, to adolescent mental health

Recent years have seen a growing awareness of the importance of adolescent mental health as a global health and development priority. The Sustainable Development Goals (SDGs), in target 3.4, include a pledge to "by 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being" (1). In recognition of their untapped potential to drive change, adolescents were included in the updated *Global Strategy for Women's, Children's and Adolescents' Health (2016–2020)* (24). The strategy incorporates a Survive, Thrive and Transform agenda in its approach, and describes the current programme to achieve the highest attainable standard of health and well-being for children and adolescents. It focuses on reducing mortality, promoting development and transforming the global context (25). It also includes optimizing mental health and well-being as well as physical health so as to enhance life-long social and economic opportunities.

WHO response

The comprehensive *Mental health action plan 2013–2020* and the *Global accelerated action for the health of adolescents (AA-HA!)* offer strategies to guide the planning, implementation and monitoring of country-level actions to improve the mental health of young people (3, 26).

At an operational level, the WHO mental health Gap Action Programme (mhGAP) intervention guide offers direction for non-specialist providers on ways to assess and manage mental, neurological and substance use conditions among adolescents (27).

These Helping Adolescents Thrive (HAT) guidelines complement the mhGAP intervention guide by providing global, evidence-informed recommendations on promotive and preventive mental health interventions for adolescents. UNICEF and WHO are also developing a HAT toolkit to provide support in putting the guidelines' recommendations into practice. The toolkit describes strategies for implementing environmental, family-focused and individual-level interventions so as to help ensure optimal mental health among adolescents.

Scope of the guidelines

Aims and objectives of the guidelines

The aim of the HAT guidelines is to provide global, evidence-informed recommendations on psychosocial interventions for the promotion of mental health and the prevention of mental disorders, self-harm and other risky behaviours among adolescents. The guidelines also consider other relevant health and education outcomes.

Along with the HAT toolkit, these guidelines will support evidence-based programming for promotive and preventive mental health interventions targeting adolescents. They will inform policy development, service planning and the strengthening of health and education systems. This will, in turn, boost country capacities to implement the AA-HA! guidelines (3), the comprehensive *Mental health action plan 2013–2020* (26) and other relevant strategies and plans.

Type of guideline

This is a standard WHO guideline document. It complies with standard WHO procedures for the development of guidelines (6).

Population of interest

The population of interest includes all adolescents (10–19 years old). Particular attention is given to (i) adolescents who are at increased risk of mental disorders or self-harm, because of exposure to adversities (such as violence, poverty and humanitarian emergencies), chronic illness (HIV/AIDS) and/or particular life circumstances (adolescent pregnancy), and (ii) adolescents who present early signs and/or symptoms of emotional and/or behavioural problems, but do not have a diagnosis of an emotional and/or behavioural disorder.

Interventions of interest

The recommendations of the HAT guidelines are focused on preventive and promotive psychosocial interventions targeting the mental health of adolescents.

Preventive interventions are “distinct from treatment, but complementary in a common goal of reducing the burden of mental, emotional, and behavioural (MEB) disorders on the healthy development of children and young people” (28). Psychosocial interventions can be defined as “interpersonal or informational activities, techniques, or strategies that target biological, behavioral, cognitive, emotional, interpersonal, social, or environmental factors with the aim of improving health functioning and well-being” (29). Psychosocial interventions use a psychological, behavioral or social approach, or a combination of these, to improve psychosocial well-being and reduce the risk of poor mental health outcomes (30). Such interventions include programmes targeting adolescents individually or in groups, or their caregivers and families. Interventions could be centred in the school, community (including in humanitarian contexts such as refugee camps), health centre or home. They could also be online, digital or combinations of all the above. A range of individuals such as teachers, health and non-health professionals, community workers, lay workers and peers can deliver the interventions.

The guidelines do not include biological interventions (such as pharmacotherapy) or those that only seek to modify the structural context of the adolescent (without any psychological or psychosocial programming content). Reviews do, however, include evaluations of actions that combine psychosocial and structural interventions.

Population, Intervention, Comparison and Outcome (PICO) question 1 includes universally delivered prevention interventions, which are programmes targeting the whole adolescent population, and designed to benefit everyone. PICO questions 2–4 include selective or targeted prevention interventions focused on individuals or communities at risk of developing mental health problems or risky behaviours owing to factors such as poverty, health status (including HIV and pregnancy), migration status and exposure to violence. PICO questions 5 and 6 include indicated interventions for prevention programmes targeting adolescents who are selected to take part in a study because they have symptoms of mental disorder or high-risk behaviours.

Comparators

The reviewers compared interventions to care as usual, which in some cases would be no care and/or no intervention.

Outcomes of interest

Outcomes varied depending on the PICO question. The primary outcomes of interest are an improvement in adolescent well-being and functioning, and a reduction in symptoms and incidences of mental disorders and in self-harm among adolescents. Other outcomes of interest include reduced risky behaviours (substance use and aggression), improved school retention and healthier sexual and reproductive behaviours.

Target audience

The primary target audiences for these guidelines are policy-makers, health care planners and programme managers in governments, as well as development and international agencies. It is possible to adapt and disseminate the guidelines for use by health, education and social care providers. Such

providers include nongovernmental organizations, community-based organizations, general practitioners, nurses, community health and development workers, social workers, teachers, school nurses, child protection actors and youth peer champions serving in primary health care, schools and communities.

Other relevant WHO guidelines and tools

WHO has a range of other guidelines, whether existing or in the pipeline, that provide approaches for promoting well-being and preventing mental disorders, self-harm and/or other health-risk behaviours among adolescents. Some of the approaches are relevant for all adolescents. Others apply to particular populations of adolescents, such as those living with HIV, pregnant adolescents or adolescent parents (Table 1).

Table 1: Relevant existing and planned guidelines regarding the mental health of adolescents

Name	Description	Access
mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings. Geneva: World Health Organization; 2017 (27).	The mhGAP intervention guide provides guidance on assessing and managing priority mental, neurological and substance use conditions, including those that have their onset during childhood and adolescence. The mhGAP intervention guide includes recommendations on promotive and preventive interventions, such as school-based and other interventions for suicide prevention and life-skills training for children and adolescents.	 scan here https://www.who.int/mental_health/publications/mhGAP_intervention_guide/en/
Guideline on school-based or school-linked health services provided by a health worker (planned) (31).	The school health services guideline will include aspects of mental health and substance-use prevention, treatment and care, and rehabilitation services when delivered by a health worker, either within schools or in association with schools.	Not yet available
Consolidated guideline on sexual and reproductive health and rights of women living with HIV. Geneva: World Health Organization; 2017 (32).	This guideline focuses on the sexual reproductive health and rights of women living with HIV. The guideline includes several aspects of mental health, for example, the impact of HIV diagnosis on mental health, the high prevalence of mental health difficulties cited by women living with HIV, or issues such as stigma, fear and discrimination, which will all be relevant for the present guidelines.	 scan here https://apps.who.int/iris/bitstream/handle/10665/254885/978924154998-eng.pdf?sequence=1
Recommendations on health promotion interventions for maternal and newborn health. Geneva: World Health Organization; 2015 (33).	This guideline contains recommendations on effective health promotion interventions to improve maternal and newborn health outcomes, and particularly examines interventions to increase skilled care-seeking during pregnancy, childbirth and after the birth.	 scan here https://apps.who.int/iris/bitstream/handle/10665/172427/9789241508742_report_eng.pdf;jsessionid=E9A5F93430BAE9FAC9A448E02EA7CFA1?sequence=1
Guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Geneva: World Health Organization; 2011 (34).	This guideline highlights effective interventions to prevent early pregnancy by influencing factors such as early marriage, coerced sex, unsafe abortion, access to contraceptives and access to maternal health services by adolescents.	 scan here https://www.who.int/maternal_child_adolescent/documents/preventing_early_pregnancy/en/
Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines. Geneva: World Health Organization; 2013 (35).	This guideline provides evidence-based guidance to health care providers on appropriate responses to intimate partner violence and sexual violence against women. This includes clinical interventions and emotional support.	 scan here https://www.who.int/reproductivehealth/publications/violence/9789241548595/en/

Table 1 (continued)

Name	Description	Access
Responding to children and adolescents who have been sexually abused: WHO clinical guidelines. Geneva: World Health Organization; 2017 (36).	This guideline, which primarily targets front-line health care providers, offers evidence-based recommendations on quality clinical care for children and adolescents (up to 18 years), who have, or may have, been subjected to sexual abuse, in order to mitigate negative health consequences and improve their well-being. The guideline proposes psychological and mental health interventions for children and adolescents who have experienced abuse, and provides complementary content to the proposed new guideline regarding adolescents exposed to adversities.	 https://apps.who.int/iris/bitstream/handle/10665/44399/9789241599979_eng.pdf?sequence=1
Guidelines for the health sector response to child maltreatment. Geneva: World Health Organization; 2019 (37).	This guideline examines health sector responses to the maltreatment of children aged 0–17 years. It provides recommendations for children who are exposed to physical abuse, emotional abuse or neglect, and children with symptoms of emotional problems, behaviour problems or post-traumatic stress disorder (PTSD). However, there are no specific considerations for the adolescent age group. Owing to limited available evidence, many of the recommendations were drawn from the mhGAP guidelines.	 https://www.who.int/publications-detail/who-guidelines-for-the-health-sector-response-to-child-maltreatment
Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach, second edition. Geneva: World Health Organization. 2016 (38).	This guideline provides guidance on the diagnosis of HIV infection, the use of antiretroviral drugs to treat and prevent HIV infection and the care of people (children, adolescents and adults) living with the infection. The guideline emphasizes that an HIV-positive diagnosis may have consequences for the mental health of the individual concerned, for example, by increasing their risk of depression or suicide. It also highlights the fact that mental health issues can hamper adherence to antiretroviral therapy, or that antiretroviral drugs may cause side-effects on mental health. However, it does not provide recommendations on which psychosocial interventions should be used to mitigate these risks.	 https://apps.who.int/iris/bitstream/handle/10665/208825/9789241549684_eng.pdf?sequence=1
Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. Geneva: World Health Organization; 2017 (39).	This guideline proposes a comprehensive package of evidence-based HIV-related recommendations for key populations, including men who have sex with men, people who inject drugs, people in prisons and other closed settings, sex workers and transgender people. Mental health disorders (depression or psychosocial stress) are highlighted as a potential comorbidity of HIV that might need prevention or management interventions. However, it does not provide recommendations on which psychosocial interventions should be used to mitigate these risks.	 https://www.who.int/reproductivehealth/publications/violence/9789241548595/en/
Global recommendations on physical activity for health. Geneva: World Health Organization; 2015 (40).	This guideline highlights the impact of physical activity on health, including mental health. For example, it mentions the need for further research on physical activity as a clinical treatment for people with noncommunicable diseases, including mental health conditions.	 https://apps.who.int/iris/bitstream/handle/10665/44399/9789241599979_eng.pdf?sequence=1
Implementing effective actions for improving adolescent nutrition. Geneva: World Health Organization; 2018 (41).	This guideline summarizes WHO recommendations that address malnutrition in all its forms in adolescents, with the aim of ensuring healthy lives and well-being in this group.	 https://www.who.int/nutrition/publications/guidelines/effective-actions-improving-adolescent/en/
WHO guideline: recommendations on digital interventions for health system strengthening. Geneva: World Health Organization; 2019 (42).	This guideline presents recommendations on emerging digital health interventions that are helping improve health systems. It recommends targeted digital client communication for health issues that concern adolescents (although it did not single out mental health matters in its investigation).	 https://www.who.int/reproductivehealth/publications/digital-interventions-health-system-strengthening/en/



HELPING ADOLESCENTS THRIVE

Guideline development process

Management structures

WHO Steering Group

WHO established a Steering Group to provide overall support to the development of the guidelines. The Department of Mental Health and Substance Use and the Department of Maternal, Newborn, Child and Adolescent Health led the Group, along with representatives of other relevant WHO departments and programmes. The WHO Steering Group proposed inviting experts with technical knowledge as well as expertise in evidence review and synthesis to the Guidelines Development Group (GDG).

GDG

Invited GDG members included academics, policy-makers, clinicians and representatives of civil society organizations with multidisciplinary expertise in adolescent health and mental health. Various methods were used to pick and nominate GDG members. They included drawing from mhGAP and adolescent health advisory networks and WHO collaborating centres, as well as using an internet search to identify experts involved in relevant evidence generation and synthesis processes. Geographical diversity and gender balance played a role in the nominations, which the Steering Group subsequently reviewed. Once the GDG was appointed, its members nominated their chairperson. The chair's role was to facilitate discussions among GDG members so that they could present their viewpoints, summarize issues that emerged from the discussions and thereby reach consensus. The full list of GDG members is included in Annex 1.

External Review Group

An external review group was appointed to provide a peer review of the guidelines' content. The full list of members is included in Annex 1. The External Review Group included five young people, whose views were given equal weight with those of the other Group members. They were engaged from the beginning of the guidelines' development process and provided input towards the conceptualization of this document. They subsequently reviewed the scoping questions and the content of the guidelines. Their suggestions were carefully considered during the revision of the document.

Declarations of interest and management of conflicts of interest

Declarations of interest were requested from all:

- ▶ GDG members
- ▶ experts and external partners involved in the evidence review process
- ▶ experts and external partners invited to review the evidence profiles.

A letter was sent to all potential GDG members requesting them to complete a declaration of interests form and submit a curriculum vitae. They were asked to consent to the publication of a summary of declarations in the guidelines. The WHO Steering Group reviewed the declarations of interest along with additional information (obtained through internet and bibliographic database searches) and assessed them to determine whether there were any conflicts of interest and, if so, whether this necessitated a management plan.

The WHO Secretariat took note of any potential conflicts of interest and prepared a summary. At the GDG meeting in September 2019, the Secretariat summarized and presented the declarations of interest to the GDG. Every GDG member had an opportunity to update or amend their declaration, and was free to comment on or express concern about other members' declared interests. No significant conflicts were identified throughout the process declarations of interest. See Annex 2 for a summary of the declarations of interest.

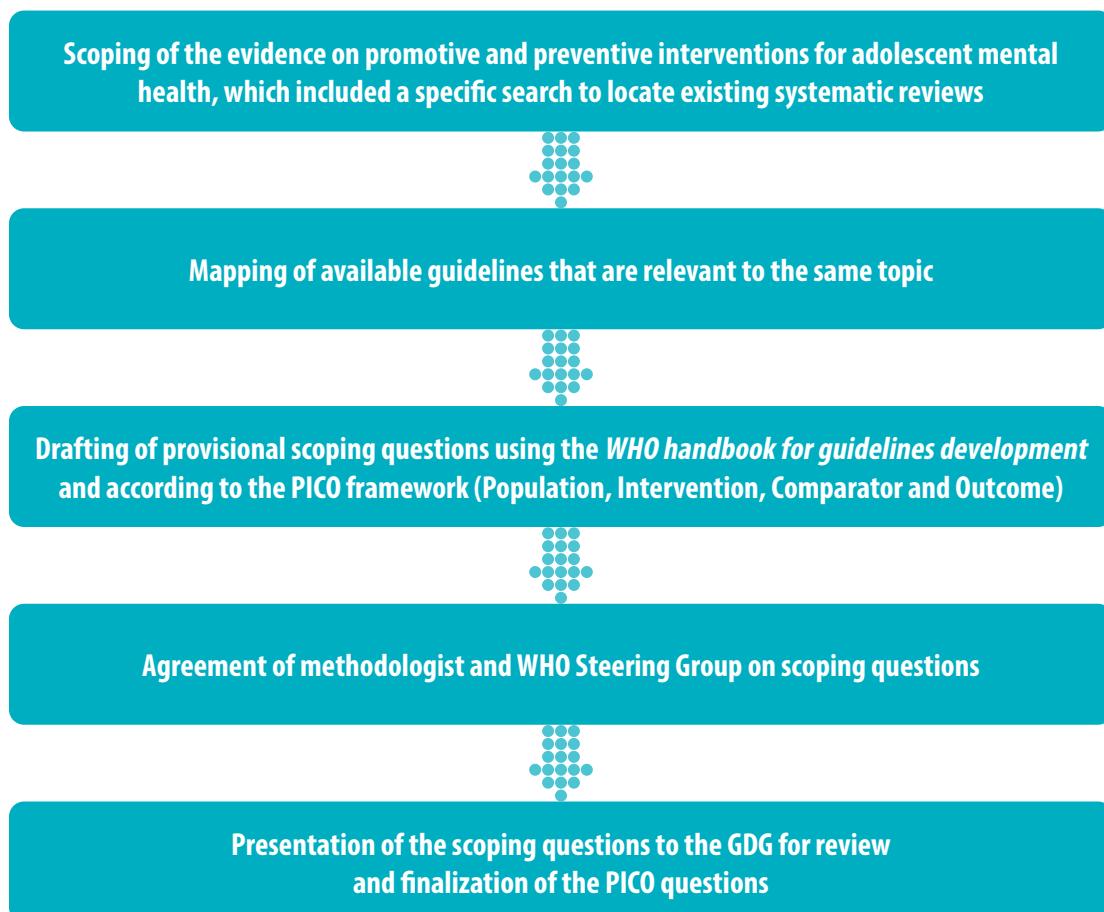
Collaboration with external partners

The Institute for Life Course Health Research supported the development of the guidelines by conducting the evidence review and synthesis. The Institute is part of the Department of Global Health of Stellenbosch University, in South Africa.

Identifying key questions and outcomes

The PICO framework was used in formulating key questions to guide the evidence-synthesis process.

Key questions were identified and finalized, as shown in the diagram below.



The final set of PICO questions is included in Annex 3.

Identifying, assessing and synthesizing available evidence

The standardized systematic review methodology was used, in conformity with the process outlined in the *WHO handbook for guideline development, 2nd edition* (6). The review protocol was shared with GDG members and registered on PROSPERO (43), a global database of systematic reviews with a health-related outcome focusing on health, social care and international development.

This involved developing a protocol, including search processes and terms as well as inclusion and exclusion criteria for populations, interventions, comparators and outcomes for each question. The detailed protocol was agreed after discussions involving the GDG, WHO Steering Group, methodologist and Evidence Review Group. Full details of the systematic review methodology are given in Annex 4.

The GRADE Evidence to Decision framework was used to assess the quality of the evidence, taking into account the study design, risk of bias, inconsistency, indirectness, imprecision and the risk of reporting bias. The certainty of the evidence was accordingly characterized as high, moderate, low or very low. The GRADE profiler software (GRADEPro) was used to prepare the summary tables. Where possible, outcomes were presented as a meta-analysis. Full details on the application of the GRADE framework are given in Annex 5.

The final evidence review report was presented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist. Along with the GRADE Evidence to Decision framework for each PICO question, the evidence review report was used as a basis for drafting neutral recommendations ahead of the GDG meeting held in September 2019. Existing reviews had limitations, such as reliance on research in English and on a disproportionately high number of eligible studies from high-income settings (Australia, Europe or North America).

Managing group processes and decision-making

The evidence review report and accompanying evidence profiles were sent to the GDG ahead of its meeting and summarized in presentations during the meeting.

The GDG reviewed the evidence and drafted recommendations, using standard WHO evidence to decision tables. On the basis of systematic reviews, the Group considered the evidence for potential benefits and harms of interventions. The GDG also looked into issues of resource availability and feasibility (including the intensity and duration of interventions, training and infrastructure requirements, legal systems and the age of consent). It took into account equity and human rights considerations (including perceived stigma; gender norms; barriers to interventions for adolescents, families and at-risk populations such as ethnic minorities and out-of-school adolescents; child protection laws and services; barriers to access due to prohibitive costs; and the implications of disclosing illegal behaviours). The GDG discussed acceptability (the implementers' views, the preferences of adolescents and their families, and predicted drop-out rates). The Group also considered sustainability (opportunities for the roll-out of interventions as part of more comprehensive adolescent health and development packages) and other possible values. The GDG conducted further searches for evidence to inform these additional considerations. References to available evidence that informs those considerations feature in Annex 6 (Evidence summaries per key question). Whenever the available evidence was insufficient, the Group drew on the expert opinions of its members.

When all GDG members showed support for a recommendation, including its phrasing, it was considered as consensus. There was a protocol for voting in the event of disagreement, with a two-third majority considered sufficient. However, this was not necessary for any of the key questions.

Confidentiality

All members of the GDG, the External Review Group and the systematic review team were asked to complete and sign the standard WHO agreement for confidentiality.



HELPING ADOLESCENTS THRIVE

Evidence and recommendations

For all key questions, this section presents overarching considerations that emerged from the GDG meeting, as well as from the evidence review and evidence-to-decision frameworks. It also presents recommendations for each of the key questions and considerations for research and implementation.

For detailed information on all evidence review findings, please see Annex 6.

For detailed information on effect size and GRADE, please refer to the evidence profiles in the Web Annex (<https://apps.who.int/iris/bitstream/handle/10665/336655/9789240012059-eng.pdf>). This document only contains summary information.

Overarching considerations for all key questions

Considerations for implementation

- Adolescents have different needs, vulnerabilities and potential outcomes, depending on their age, developmental stage and gender.
- It is important to consider mental health determinants and risk factors in the local context, as well as potential barriers to accessing care. This will make it possible to carefully plan and implement inclusive and tailored strategies to reach all adolescents including: those with disabilities; those who are living in poverty; out-of-school adolescents; orphans; those from minority groups; those suffering from chronic health conditions; lesbian, gay, bisexual, transgender and intersex (LGBTI) adolescents; pregnant adolescents; those exposed to violence; and those in humanitarian emergencies.

- ▶ Other comorbid health conditions and structural circumstances may influence the outcomes of promotive and preventive interventions.
- ▶ The involvement of families of adolescents and other stakeholders in the delivery of psychosocial interventions is important.
- ▶ Since adolescents aged under 18 or 16 years old (depending on the national policy) are below the age of consent, it is very important to obtain their parents' or legal guardian's consent.
- ▶ Interventions should take place in parallel with ongoing efforts to strengthen systems where the interventions are delivered, including in health, education and community contexts.
- ▶ Interventions should be delivered through diverse platforms. It is important to consider how to integrate the promotion of mental health and the prevention of mental illness into existing programmes, such as those targeting pregnant adolescents, adolescents exposed to violence and adolescents living with HIV. This is likely to matter especially in LMICs and humanitarian contexts, and in other settings where resources are particularly scarce. For example, it could be included in mental health promotion within a pre-existing health education module in schools, as part of instruction delivered to children or adolescents by religious groups or nongovernmental organizations, or in antenatal or postnatal sessions delivered to pregnant adolescents or young mothers. It is also important to consider whether lay workers with suitable training, support and supervision could deliver all or parts of the intervention. Digital technologies provide concrete opportunities to enhance the coverage of promotive and preventive mental health interventions for adolescents. However, this requires addressing concerns about sensitive content, data privacy and the potential harms of increased exposure, as well as careful consideration of their impact on equity in access to care.
- ▶ Meaningful and systematic engagement of adolescents in the planning, development, implementation and evaluation of interventions may help to make them more acceptable for this group.
- ▶ Trained, supported and supervised facilitators should deliver interventions.
- ▶ Psychosocial interventions bring the expected benefits when they are designed in line with evidence-based principles and implemented diligently, with due attention to treatment intensity and dosage, good adherence to the intervention, and high quality of delivery.
- ▶ Interventions should be adapted for use in new areas, taking into account the cultural context of each site.
- ▶ It is necessary to take into account ethical issues concerning the age of majority and/or adulthood, as well as parental consent and ethical aspects of interventions with minors. Specifically, at the core of every psychosocial intervention there must be clear requirements for fully informed consent to voluntary participation, devoid of any form of coercion. It is vital to respect confidentiality at all times, and to consider the best interests of the adolescent.

Considerations for research

- Evidence from LMIC settings is under-represented in the evidence base. There is a critical need for further research and programme evaluation to improve knowledge on the effectiveness, costs and implementation of interventions in specific contexts, including low-resource or high-adversity settings.
- Although evidence is available on the effectiveness of promotive and preventive interventions targeting the mental health of adolescents, many of the studies had major methodological limitations, which further highlights the need for more high-quality research in this area.
- There is a need for further research regarding implementation to establish optimal and feasible training models for implementers who deliver promotive and preventive interventions for adolescents.
- Additional research is required to identify interventions that improve mental health trajectories in vulnerable groups, such as adolescents who are exposed to violence or poverty, those from minority groups, LGBTI adolescents, or those living with HIV/AIDS or other chronic health conditions.
- Additional research is required on the effects, including additive effects, of structural intervention components. An example would be research to address structural social determinants of the mental health of adolescents.
- Additional research is required to establish the effectiveness and cost-effectiveness of promotive and preventive mental health interventions for non-mental health-related outcomes (including sexual and reproductive health, substance use and school attendance) and for long-term outcomes (including those that concern education and employment).
- There is a need for additional research on the impact of involving parents, caregivers and families in psychosocial interventions, and on the best strategies for doing so.
- Many studies routinely exclude suicidal adolescents. Given the high level of mortality associated with suicide in adolescence, future research should include suicidal adolescents (with appropriate ethical oversight), evaluate suicide prevention interventions and assess suicide outcomes.
- It is essential to improve reporting mechanisms for data collection, mechanisms of change and types of interventions. It is equally important to enhance the implementation and scale-up of these types of interventions in diverse settings.
- It will be important for future studies to report their results by sex and age.
- Additional documentation is needed on the resources required to implement interventions, especially in low-resource settings. There is also a need for studies on the potential for delivering interventions through lay workers with suitable training, support and supervision.
- It is vital to carefully consider ethical implications of researching promotive and preventive interventions for adolescents, including with regard to voluntary participation, the anonymity of data and the management of potential unintended harms.

Question 1:
Should psychosocial interventions be considered for all adolescents to improve their positive mental health, to prevent mental disorders, self-harm and suicide, and to reduce risky behaviours?

Population

All adolescents.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be universally delivered interventions.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours and school attendance.

Background

Universal preventive interventions are those applied to entire populations regardless of their risk status. The advantages of universal interventions are that they tend to be conducted in settings that naturally capture a large proportion of the population, such as schools, resulting in low attrition rates (44,45). Universal interventions offer the opportunity to target a wide range of risk factors simultaneously, which is particularly pertinent in low-income countries where adolescents are more likely to experience a broad range of adverse life events (45, 46).

One advantage of universal interventions is that high-risk adolescents are not easily identifiable by their peers. With indicated interventions, participants screened for internalizing or other symptoms may be pulled from class activities in order to attend the intervention programme – making it easy to identify participants as different and potentially leading to increased stigma (44, 45, 47, 48). This is of concern for adolescents, who are in a developmental period where peer relationships and social standing are particularly salient and formative (49). School administrators may also find universal interventions easier to implement (47, 48, 50).

Recommendation

Recommendation A

Universally delivered psychosocial interventions should be provided for all adolescents. These interventions promote positive mental health, as well as prevent and reduce suicidal behaviour, mental disorders (such as depression and anxiety), aggressive, disruptive and oppositional behaviours, and substance use.

Strength of recommendation: Strong.

Certainty of evidence: Low.

Important remarks: Based on available evidence, interventions should cover social and emotional learning, which may include components such as: emotional regulation, problem-solving, interpersonal skills, mindfulness, assertiveness and stress management (7).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made despite the low certainty of evidence thanks to the relative consistency of the study results and the fact that significant benefits substantially outweighed potential harms. In addition, considerations about values, feasibility and cost-effectiveness further supported the recommendation. Universal interventions in schools may be easier to implement and less likely to cause stigmatization compared to interventions that require screening. When delivered in schools, interventions may help to reach a large proportion of adolescents and address a wide range of risk factors while providing basic skills to promote mental health and prevent risky behaviours.

Additional considerations

Considerations for implementation

- It is possible to implement these interventions through different platforms (including digital platforms, communities and health centres); however the majority of interventions evaluated in this review (70%) were implemented in schools.
- It is important to use a multi sectoral approach, including a range of stakeholders (such as health, education, youth protection and others), and to implement coordinated and multifaceted interventions.
- Interventions should be culturally sensitive and maximize the use of available resources, including by utilizing task-sharing models.

Considerations for research

- There is an urgent need to research the equity impacts of universally delivered interventions to promote mental health among adolescent groups experiencing vulnerability and marginalization or social exclusion (defined by gender, as LGBTI, belonging to indigenous populations or exposed to violence and/or poverty).

Question 2a:
Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, violence) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Adolescents exposed to violence.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be targeted interventions, directed specifically towards adolescents exposed to adversities.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression, anxiety and disorders specifically related to stress symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours and school attendance.

Background

Violence against children is a worldwide concern, with an estimated one billion children aged 2–17 years having experienced some form of violence or neglect in the past year (51). Since 2010, the number of children and adolescents living in conflict zones has risen by 37%, while the same period has seen a 174% increase in verified grave violations against children (52). There has been extensive research on the negative effects of violence on children's mental health outcomes, with an increasing amount focusing on adolescents. Adolescents who have experienced violence can present with a wide range of conditions, including PTSD (53) and depression (54). Moreover, negative mental health outcomes can result from different types of exposure to violence, including intimate partner violence (55) and family violence (56). Adverse childhood experiences, such as exposure to violence, can increase the likelihood of engaging in risky behaviours, with earlier onset of drinking alcohol and other substance use (57). Preventive efforts, including interventions driven by UNICEF, WHO and other major partners, have played a critical role in preventing violence against children. However, there is a lack of data on successful interventions among populations that have already experienced or faced violence.

It is important to put priority on delivering interventions to promote the positive mental health of adolescents exposed to violence, as well as to prevent mental disorders, self-harm and suicide, and reduce risky behaviours among them. However, no specific recommendation can be made on psychosocial interventions for adolescents exposed to violence, as there was no clear evidence of effects in the limited number of studies that were identified as targeting adolescents exposed to violence.

Other WHO guidelines exist which provide guidance on responding to: child maltreatment; sexual abuse in children and adolescents; and, intimate partner violence and sexual violence against women. They include:

- **WHO guidelines for the health sector response to child maltreatment. WHO, 2019.** <https://www.who.int/publications-detail/who-guidelines-for-the-health-sector-response-to-child-maltreatment> (36).
- **Guidelines on responding to children and adolescents who have been sexually abused. WHO, 2017.** <https://apps.who.int/iris/bitstream/handle/10665/259270/9789241550147-eng.pdf?sequence=1> (37).
- **Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines. WHO, 2013.** https://apps.who.int/iris/bitstream/handle/10665/85240/9789241548595_eng.pdf?sequence=1 (35).

Additional considerations

This review did not identify other studies that may have been conducted in adolescent populations exposed to violence because those studies did not report on mental health outcomes.

Considerations for implementation

- ▶ In the absence of a specific recommendation on psychosocial interventions for adolescents exposed to violence, universally delivered interventions could be made available (see recommendation for PICO question 1).

Considerations for research

- ▶ There is an urgent need for high-quality research to evaluate the effects of psychosocial interventions that aim to promote mental health and prevent mental disorders, self-harm and risky behaviours among adolescents exposed to violence.
- ▶ Additional research is needed on the impact of social media on the mental health of adolescents in LMICs, and on interventions using social media to promote mental health and prevent mental disorders.
- ▶ Researchers should consider the characteristics of the community and other settings that may put adolescents at risk of violence, and provide descriptive information on the characteristics and demographics of the target population. This will allow readers to assess the level of risk of exposure to violence among adolescents who receive psychosocial interventions.

Question 2b:
Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, extreme poverty) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Adolescents exposed to poverty.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be targeted interventions, directed towards adolescents exposed to adversities specifically.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression, anxiety and disorders specifically related to stress symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours and school attendance.

Background

Adolescence is a vulnerable transitional period of biological and psychosocial development (58, 59). Exposure to poverty during adolescence can disrupt and affect development, productivity and health outcomes for adolescents over the life-course. It places adolescents at increased risk of food insecurity and hunger, infectious diseases, exposure to community violence (58) and dropping out of school, and limits employment opportunities. It is linked to increased mental health problems as well as engagement in risky behaviours, including substance use and risky sexual behaviours (60, 61). It is thus critically important to invest in preventing mental health problems in this group (59). However, there are well documented methodological challenges associated with evaluating interventions for this group.

It is important to put priority on delivering interventions to promote the positive mental health of adolescents exposed to poverty, as well as to prevent mental disorders, self-harm and suicide, and reduce risky behaviours among them. However, due to lack of evidence, it was not possible to offer any specific recommendation on psychosocial interventions to promote positive mental health among adolescents exposed to poverty. It was, likewise, impossible to make recommendations on interventions to prevent mental health disorders (depression, anxiety and disorders related specifically to stress), aggressive, disruptive and oppositional behaviours, substance use, self-harm and suicide in this population. This was due to challenges in identifying the full range of relevant studies and to lack of clear evidence of effects in the studies that were identified as targeting adolescents exposed to poverty.

Poverty as a risk factor for the mental health outcomes of adolescents is a complex, multidimensional construct. It needs to be more broadly conceptualized and clearly defined in future research publications focusing on adolescents exposed to poverty.

Additional considerations

This review did not identify other studies that may have been conducted in adolescent populations exposed to poverty because the authors did not define the population as such.

Considerations for implementation

- In the absence of a specific recommendation on psychosocial interventions for adolescents exposed to poverty, universally delivered interventions could be made available (see recommendation for PICO question 1).

Considerations for research

- There is an urgent need for high-quality research to evaluate the effects of psychosocial interventions that seek to promote mental health and prevent mental disorders, self-harm and risky behaviours among adolescents exposed to poverty.
- Researchers should consider the characteristics of communities and other settings that may put adolescents at risk of exposure to poverty. They also need to provide descriptive information on the characteristics and demographics of the target population. This will allow readers to assess the level of risk of exposure to poverty among adolescents who receive psychosocial interventions.
- Individual psychosocial interventions may be inadequate without structural interventions. As such, researchers should conduct studies on the implementation and effectiveness of psychosocial interventions when delivered as a supplement to structural interventions that help tackle underlying poverty.

Question 2c:
Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, humanitarian emergencies) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Adolescents exposed to humanitarian emergencies.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be targeted interventions, directed towards adolescents exposed to adversities specifically.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression, anxiety and disorders specifically related to stress symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours and school attendance.

Background

Humanitarian emergencies encompass a broad range of events, including situations arising from war, armed conflict, displacement, natural disasters and man-made or industrial disasters (62). Humanitarian emergencies have an impact on significant numbers of people. For example, current estimates put the number of children displaced internally as a result of armed conflict at approximately 20 million (63). Owing to wars or other disasters, the individuals affected may be exposed to trauma, loss and uncertainty, and witness atrocities. As such, mental disorders and psychosocial problems are prevalent within humanitarian settings (62), with the potential of long-lasting disturbances due to loss, trauma and uncertainty (64). Moreover, armed conflict and other humanitarian emergencies may significantly disrupt the life trajectories of the individuals they affect (65).

Adolescents are vulnerable to the negative effects of humanitarian emergencies on mental health (66). The need for mental health services in these settings is evident. However, very often a vast gap exists between the needs of the individuals affected and available services. This is particularly true for resource-constrained LMIC settings affected by conflict or natural disaster, and those hosting the largest numbers of refugees.

Recommendation

Recommendation B

Psychosocial interventions should be provided for adolescents affected by humanitarian emergencies. These interventions are particularly beneficial for preventing mental disorders (depression, anxiety and disorders related specifically to stress) and may be considered for reducing substance use in these populations.

Strength of recommendation: Strong for reducing symptoms of and/or preventing mental disorders (depression, anxiety and disorders related specifically to stress). Conditional for substance use.

Certainty of evidence: Low.

Important remarks: Past and continuing support to adolescents exposed to humanitarian emergencies includes a broad range of psychosocial interventions. This reflects the heterogeneous nature of experiences involving emergency events. It is therefore important to interpret study findings with caution. Available evidence indicates that stress management, relaxation strategies and care for the implementer's well-being are the intervention components most associated with effectiveness. For adolescents with high levels of trauma exposure, trauma-focused cognitive behavioural therapy (CBT) has shown positive effects on reducing symptoms of depression, anxiety and stress (8, 9). Group-based CBT interventions have shown positive effects on the symptoms of other adolescents exposed to stressful events (10).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made for psychosocial interventions to reduce symptoms of mental disorders, in spite of the low certainty of evidence. The reason was that the clinically relevant anticipated benefits outweigh potential harms. Furthermore, important values, equity and feasibility considerations suggest that programmes to prevent mental illness should give priority to adolescents exposed to humanitarian emergencies. The evidence supports the notion that all adolescents should benefit from universally delivered psychosocial interventions. The high prevalence of mental disorders among adolescents exposed to humanitarian emergencies, and the huge treatment gap in those settings, make the case for implementing psychosocial interventions with this population even more compelling. However, it is important to consider the adolescents' profile and exposures, given the heterogeneity of experiences and circumstances.

Most of the studies were conducted in LMICs, and a third of the studies investigated interventions delivered by non-specialists. As such, the findings are directly relevant to the settings where most of the adolescents exposed to humanitarian emergencies live.

Additional considerations

This review did not identify other studies that may have been conducted in adolescent populations exposed to humanitarian emergencies because the authors did not define the population as such.

Considerations for research

- There is a need for greater focus in research on self-harm and suicide outcomes.
- It is particularly important to pay close attention to research ethics in these contexts.

Considerations for implementation

- In the majority of humanitarian crises, programmers and researchers have limited access to the populations affected.
- It is particularly important to take into account age- and gender-specific vulnerabilities within these contexts.

Question 3:
Should psychosocial interventions be considered for pregnant adolescents and adolescent parents to promote their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Pregnant adolescents and adolescent parents.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be targeted interventions, directed towards pregnant adolescents and adolescent parents specifically.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm, suicide and risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours, school attendance, adherence to antenatal and postnatal care, parenting skills (parenting knowledge and attitudes and parenting behaviours) and exposure to intimate partner violence.

Background

Approximately 19 million girls aged below 20 years give birth each year in resource-poor settings (67, 68). As adolescents are the fastest growing age group worldwide, the number of pregnancies among them is expected to grow in the next decade. While some of the pregnancies are planned, as many as two thirds may be unintended (69). Pregnancy in adolescence is also associated with low socioeconomic status, dropping out of school, unemployment and exposure to violence and substance use (67–69). While poverty and vulnerability increase the risk of early pregnancy and parenthood, adolescent parenthood may in turn lead to these risk factors. Furthermore, adolescents who are pregnant face additional health and psychosocial risks (69). Adolescent mothers experience higher rates of physical complications and maternal mortality compared to older women, and are more likely to deliver infants with low birthweights (68, 69). Pregnant and postpartum adolescents are more likely to experience mental health issues, such as depression, compared to older mothers (70). Adolescents have been found to overestimate the amount of support they will receive after childbirth, leading to increased stress and postpartum depression (69). Additionally, depression in this group is associated with dropping out of school, harsh parenting, alcohol and other substance use and repeat pregnancies (69, 70).

Recommendation

Recommendation C

Psychosocial interventions should be considered for pregnant adolescents and adolescent parents, particularly to promote positive mental health (mental functioning and mental well-being) and improve school attendance.

Strength of recommendation: Conditional.

Certainty of evidence: Low.

Important remarks: Based on available evidence, cognitive behavioural skills-building programmes may be considered for pregnant adolescents and adolescent mothers (11).

Additional considerations

Considerations for implementation

- Programmes should consider integrating psychological interventions into pre-existing maternal health programmes.

Considerations for research

- There is a need for more research on the impact of psychosocial interventions to reduce: mental disorders (depression and anxiety); substance use; self-harm and suicide; and exposure to intimate partner violence, aggression and risky sexual behaviours. Likewise, research is required on the impact of interventions to improve parenting skills, as well as adherence to antenatal and postnatal care among pregnant adolescents and adolescent parents, particularly in LMICs.
- There is a need for more evidence on the effects of psychosocial interventions on the mental health of adolescent fathers and on their psychosocial needs.

Question 4:
Should psychosocial interventions be considered for adolescents living with HIV/AIDS to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Adolescents living with HIV/AIDS.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be targeted interventions, directed towards HIV-positive adolescents specifically.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Risky sexual behaviours, school attendance and adherence to antiretroviral therapy.

Background

Worldwide, an estimated 1.7 million adolescents are living with HIV, with 80% of them residing in sub-Saharan Africa (71). The prognosis for adolescents living with HIV is still dire: each day, 150 adolescents die from AIDS-related causes, and while AIDS-related deaths declined for all age groups between 2000 and 2015, this was not the case for adolescents (72). In addition to its effects on physical health, which include pubertal and neurological developmental delays, living with HIV has unique psychosocial challenges such as stigma, orphanhood, isolation, and difficulty managing medication and adhering to treatment (73). The disclosure of HIV status is also an area of concern, because many adolescents establish romantic and sexual relationships. This is also an important time for developing interpersonal skills and creating support networks (74). These stressors can significantly increase an individual's risk of developing mental health conditions, and their likelihood of engaging in risky behaviours. Depression, anxiety, hopelessness and fear for the future are all common in this population group (72), which makes mental health a vital area of intervention for adolescents living with HIV/AIDS. Relevant evidence was only considered from studies conducted with adolescents and it was decided not to apply evidence from studies on adults to this younger group.

It is important to put priority on the delivery of interventions to promote positive mental health among adolescents living with HIV, as well as to prevent mental disorders, self-harm and suicide, and reduce risky behaviours among them. However, due to lack of evidence, it was not possible to offer any specific recommendation on psychosocial interventions to promote positive mental health among adolescents living with HIV. There is an urgent need for high-quality research to assess the effect of psychosocial interventions that seek to promote mental health and prevent mental disorders, self-harm and risky behaviours among adolescents living with HIV.

Additional considerations

This review did not identify other studies that may have been conducted in adolescent populations living with HIV because the authors did not define the population as such.

Considerations for implementation

- ▶ In the absence of a specific recommendation on psychosocial interventions for adolescents living with HIV/AIDS, universally delivered interventions could be made available (see recommendation for PICO question 1).

Considerations for research

- ▶ There is an urgent need to research the impact of psychosocial interventions on equity among adolescents living with HIV.
- ▶ Researchers should ensure that study outcomes include antiretroviral adherence, HIV viral suppression, school attendance, risky sexual behaviours and related health conditions.
- ▶ Mental health outcomes should feature in other areas of research on adolescents living with HIV, for example, in research to assess the mental health impact of HIV-related interventions.

Question 5:
Should psychosocial interventions be considered for adolescents with emotional problems in order to prevent mental disorders (including progression to diagnosable mental disorders) and to prevent self-harm and/or other risky behaviours?

Population

Adolescents with emotional problems (existing psychological symptoms, but with no existing diagnosis).

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be indicated interventions for adolescents with existing psychological symptoms.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Mental disorders (depression and anxiety symptoms and diagnoses), self-harm and suicide.

Important outcomes

Positive mental health (mental well-being and mental functioning), risky behaviours (substance use and aggressive, disruptive and oppositional behaviours), risky sexual behaviours and school attendance.

Background

Emotional disorders, such as anxiety and depression, are increasingly prevalent in adolescent populations (75–77). The development of these disorders can lead to a range of negative effects in adolescents, such as worse school performance, trouble with peer relationships and increased participation in risky behaviours (44, 48). Poor mental health outcomes among adolescents pose a great risk of future physical and mental health issues. They raise the likelihood of a depression diagnosis in adulthood, poor work performance, reduced income, suicidal thoughts and physical health problems, such as diabetes (78). Indicated prevention interventions aim to avert the onset of a diagnosable mental health condition in high-risk adolescents identified as already experiencing mild-to-moderate symptoms (47, 48, 79). Such interventions are often more tailored to individual needs than universal, school-based interventions. This may bring about greater satisfaction for both the implementer and the participant, and enhance sustainability (49, 50, 79, 80).

Recommendation

Recommendation D

Indicated psychosocial interventions should be provided for adolescents with emotional symptoms.

Strength of recommendation: Strong for reducing symptoms of depression/anxiety and/or preventing mental disorders (depression and anxiety) and promoting positive mental health. Conditional for improving school attendance.

Certainty of evidence: Very low.

Important remarks: Based on the available evidence, group-based CBT may be considered for adolescents with emotional symptoms (12).

Rationale: The certainty of the evidence was often downgraded because studies were subject to the risk of bias due to difficulty in blinding the interventions and to reliance on self-reported outcomes, both of which are common in these types of intervention studies. However, a strong recommendation was made to reduce symptoms of depression and/or anxiety and/or prevent mental disorders (depression and anxiety), as well as to promote positive mental health in adolescents with emotional problems. This was in spite of the very low certainty of evidence. The reason is that the benefits outweigh the potential harms. Additionally, considerations about important values, equity and cost-effectiveness justify investing in interventions for this at-risk group. Poor mental health among adolescents is a key risk factor for physical and mental health issues later in life. Early intervention with adolescents who are already displaying emotional problems has proved crucial in preventing the progression of mental health problems and optimizing health and life trajectories.

Additional considerations

Considerations for research

- There is a need for further research to increase evidence from LMICs.
- Further research is required on the links between depression, anxiety, self-harm and suicidal behaviours in LMICs.

Question 6:
Should psychosocial interventions be considered for adolescents with disruptive/oppositional behaviours in order to prevent conduct disorders, self-harm and/or other risky behaviours?

Population

Adolescents with existing disruptive or oppositional behaviour problems, but with no existing diagnosis.

Intervention

These are interventions that use a psychological, behavioural or social approach, or a combination of these. They will be indicated interventions for adolescents with existing disruptive or oppositional behaviours.

Comparator

Care as usual. The usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Critical outcomes

Conduct disorder, oppositional defiant disorder, self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours).

Important outcomes

Positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), risky sexual behaviours and school attendance.

Background

Externalizing behavioural problems affect around 7% of young people between 9 and 15 years of age (81), with an estimated prevalence of 3.3% for oppositional defiant disorder and 4% for conduct disorder (82). Many more children and adolescents possibly present with externalizing problems (but do not meet the criteria for a formal diagnosis) than are formally diagnosed (83). Because of their social and health implications, externalizing behaviours among children and adolescents are viewed as a public health concern (84). Externalizing behaviours can cause significant issues in school, peer and family functioning (85). They can persist into adulthood, increasing the risk of substance use (85, 86). Evidence shows that conduct problems in adolescence cause social and health impairments, resulting in poor educational, occupational, health and other negative outcomes in adulthood (81, 85). Moreover, conduct disorder is strongly linked to delinquency and criminal activity (73).

Recommendation

Recommendation E

Indicated psychosocial interventions should be provided for adolescents with disruptive/oppositional behaviours. These interventions reduce aggressive, disruptive and oppositional behaviours, prevent mental disorders (depression and anxiety) and promote positive mental health. The interventions should be delivered with caution to avoid increasing substance use among adolescents with disruptive and oppositional behaviours.

Strength of recommendation: Conditional.

Certainty of evidence: Very low.

Important remarks: According to available evidence, effective psychosocial interventions for adolescents at risk of, or diagnosed with, conduct disorder often include: training for parents, based on social learning approaches; and social-cognitive problem-solving and interpersonal skills training for the adolescents. They may also include multimodal interventions for adolescents and their parents, based on a social learning model (73).

Additional considerations

Considerations for research

- There is a need for further research on interventions for this population in LMICs. The research should also cover potential adverse effects of substance use, and explore alternative models for intervention delivery (including task-shifting approaches).
- More research is needed on the impact of psychosocial interventions for reducing self-harm and suicide in adolescents with disruptive and/or oppositional behaviours.
- Further research is needed on the optimal age(s) for intervention with this population.
- All studies should monitor substance use when interventions are under way in this population.

Considerations for implementation

- Given how challenging it is to implement these interventions, it may be necessary to continuously monitor high-risk adolescents for unintended negative effects and refer them to more specialized interventions for adolescents.
- It is important to use group approaches with caution as adolescents may learn new oppositional or disruptive behaviours from each other, and/or reinforce their own by observing and interacting with other adolescents who display such behaviours.



HELPING ADOLESCENTS THRIVE

Implementation of the guidelines

Implementation considerations

Member States are expected to adapt the recommendations of these global guidelines to suit their individual context and local feasibility considerations. WHO regional and country offices will be on hand to assist with these processes. Psychosocial interventions targeting adolescents directly should be considered as part of broader strategies within policies, schools, communities and families. A UNICEF/WHO HAT toolkit will be made available to help countries to operationalize the guideline recommendations and integrate actions for mental health promotion and prevention for adolescents into policies and across delivery platforms. Intervention manuals and other implementation tools are also being developed to support the delivery of psychosocial interventions employing different delivery platforms.

Psychosocial interventions targeting adolescents directly should be considered as part of broader strategies within policies, schools, communities and families.

It is critical to engage with multiple partners and stakeholders to strengthen evidence-informed programming and implementation, as well as to evaluate and sustain progress. Collaboration with diverse sectors can help to ensure a comprehensive, cross-sectoral and more sustainable approach.

In order to scale up promotive and preventive interventions targeting the mental health of adolescents, it is usually necessary to have the endorsement of local administrators and government policy-makers. In addition, effective leadership is required to transform existing processes. Lastly, the people who will deliver the interventions, including health workers, need to be trained.

Monitoring and evaluation of the quality and implementation of the guidelines

Monitoring and evaluation should be built into every process for implementing the recommendations. This will determine effectiveness, document important lessons for uptake and guide further implementation.

WHO will use routine surveys to evaluate the integration of mental health recommendations that are specific to adolescents into national policies, curricula and training courses. WHO will work with national authorities to incorporate questions about the new recommendations into relevant routine national training assessments, ongoing health and mental health surveillance, and supervisory practice. The questions will also touch on the experiences that educators, health staff and other community members have had while implementing the recommendations. Furthermore, WHO will track progress towards implementation as well as any barriers encountered.

Supporting local adaptation

WHO country offices and national ministries of health and education will support local adaptation of the guidelines. National guidelines, such as policies on adolescents and young people that might be affected by the recommendations, as well as national curricula, will be reviewed with the aim of integrating approaches where relevant.



HELPING ADOLESCENTS THRIVE

Dissemination of the guidelines and plans to update them

Publication and dissemination

WHO will disseminate the guidelines as a print publication as well as posting them on its website. Additionally, it will disseminate them through WHO country and regional offices, and a broad network of international partners, including national ministries of health, WHO collaborating centres, universities, nongovernmental organizations and other United Nations agencies.

The guidelines have been developed in English, and will be translated into other WHO official languages for wider distribution, in collaboration with WHO regional offices. Dissemination will be supported by the publication of evidence reviews in peer-reviewed journals and presentations at key conferences and events.

Plans to update the guidelines

The WHO Steering Group, in consultation with GDG members and technical experts, will continue to follow developments in research on the mental health of adolescents, particularly for questions in which the quality of existing evidence was found to be low or very low. If the guidelines require an update, if for instance providing recommendations or good practice statements on psychosocial interventions for other groups of adolescents exposed to vulnerabilities becomes possible, or if there are concerns that one or more of their recommendations may no longer be valid, WHO will coordinate an update to the document, in line with the formal procedures of the *WHO handbook for guideline development, 2nd edition* (6).

Annex 1: Guideline Development Group and External Review Group members

GRADE methodologists

Corrado Barbui and Marianna Purgato, University of Verona, Italy

Guideline Development Group (GDG)

Nick Allen, University of Oregon, United States of America (USA); Steve Allsop, WHO Collaborating Centre for the Prevention of Alcohol and Drug Abuse, National Drug Research Institute, Curtin University, Australia; Gracy Andrew, Sangath, India; Dixon Chibanda, University of Zimbabwe, Zimbabwe; Pim Cuijpers, Vrije Universiteit Amsterdam, the Netherlands; Rabih El Chammary, Ministry of Public Health, Lebanon; Sarah Harrison, International Committee of the Red Cross, Denmark; Andres Herrera, Universidad Nacional Autonoma de Nicaragua, Nicaragua; Mark Jordans, War Child, the Netherlands; Chisina Kapungu, International Center for Research on Women, Washington DC, USA; Eugene Kinyanda, Medical Research Council/Uganda Virus Research Institute, Uganda; Crick Lund, University of Cape Town, South Africa (*Chair*); Yutaka Motohashi, WHO Collaborating Center for Research and Training in Suicide Prevention, National Institute of Mental Health, Japan; Olayinka Omygbodun, Ibadan University, Nigeria; George Patton, University of Melbourne, Australia; Atif Rahman, Human Development Research Foundation, Pakistan; Jacqueline Sharpe, Ministry of Health, Trinidad and Tobago; Katherine Sorsdahl, University of Cape Town, South Africa; Anna Szczegielniak, Tarnowskie Gory, Poland; Wietse A. Tol, Johns Hopkins Bloomberg School of Public Health, USA; Lakshmi Vijayakumar, Safety, Health and Environment National Authority, India; and Danuta Wasserman, WHO Collaborating Centre on Research, Methods Development and Training in Suicide Prevention, Karolinska Institutet, Sweden.

External Review Group

Vladimir Carli, WHO Collaborating Centre on Research, Methods Development and Training in Suicide Prevention, Karolinska Institutet, Sweden; Lucie Cluver, Oxford University, United Kingdom of Great Britain and Northern Ireland; Delanjathan Devakumar, University College London, United Kingdom; Daniel Fung, International Association for Child and Adolescent Psychiatry and Allied Professions, Singapore; Kanika Malik, Sangath, India; Lynette Mudekunye, Regional Psychosocial Support Initiative, South Africa; Graham Thornicroft, King's College London, United Kingdom; and Shamsa Zafar, Health Services Academy, Pakistan.

Youth Review Group: Tasnia Ahmed, Bangladesh; Charity Giyava, Zimbabwe; Brian Mafuso, Zimbabwe; David Milambe, Malawi; and William Yeung, ReachOut, Australia.

We acknowledge technical contribution from UNICEF colleagues, particularly: Liliana Carvajal, Cristina De Carvalho Eriksson, and Joanna Lai, UNICEF Headquarters, New York, USA.

Selection of GDG members took into account their relevant areas of expertise, gender and geographical representation. Experts were drawn from different areas of child and youth mental health, particularly in relation to: school-based interventions; the prevention of suicide and mental disorders; and to the psychological treatment of depression and anxiety disorders. The rest of the areas of expertise are listed below:

- ▶ policy and programming for maternal, child and adolescent mental health, family planning, sexual and reproductive health, and mental health promotion in schools;
- ▶ planning and delivery of psychosocial support and mental health interventions for populations in adversity and displaced populations;
- ▶ strengthening of health systems and workforce development for mental health;
- ▶ promotion of mental health among ethnic minorities;
- ▶ risky behaviours in HIV-positive people;
- ▶ gender norms, sociodeterminants of mental health, and human rights;
- ▶ community mental health and stigma reduction.

Representatives of academic institutions, nongovernmental organizations, policy-makers and young people were invited as members of the External Review Group to take part in developing the guidelines. They contributed expertise and experience in the following fields:

- ▶ promotion of mental health and well-being among adolescents;
- ▶ suicide prevention, youth mental health and school-based interventions;
- ▶ psychosocial support in humanitarian settings;
- ▶ HIV and mental health;
- ▶ stigma and mental health;
- ▶ women's mental health, sexual and reproductive health, and violence;
- ▶ disabilities, human rights and stigma;
- ▶ mental health programming and policy development;
- ▶ clinical experience in psychosocial interventions for adolescents and their families;
- ▶ children's rights and well-being and the protection of orphans, children separated from their families, and unsupervised children across cultures.

Annex 2: Declarations of conflict of interest

Individuals involved in assessing conflicts of interest:

Tarun Dua, Department of Mental Health and Substance Use, WHO headquarters

Chiara Servili, Department of Mental Health and Substance Use, WHO headquarters

David Ross, Department of maternal, Newborn, Child and Adolescent Health, WHO headquarters

To comply with WHO's conflict of interest policy, the WHO Secretariat followed the revised *Guidelines for declaration of interests (WHO experts)*.¹ It requested all GDG members, external partners involved in the evidence review process and experts invited to review evidence profiles to submit a declaration of interests form.

The WHO Secretariat sent a letter to all GDG members, the External Review Group and external partners requesting them to complete the declaration of interests form and submit a curriculum vitae. They were asked to consent to the publication of a summary of declarations in the guidelines. The GDG members were also required to complete a confidentiality undertaking. The WHO Secretariat reviewed the declarations of interest as well as additional information (obtained through internet and bibliographic database searches) and determined whether there were any conflicts of interest and, if so, whether this required a management plan.

The names and brief biographies of members being considered for participation in the GDG were disclosed for public notice and comment prior to the GDG meeting in September 2019. The aim was to enhance WHO's management of conflicts of interest, as well as to boost public trust and transparency regarding its meetings and activities that involve providing technical and/or normative advice.

At the beginning of the meeting, the declaration of interests of each GDG member was presented. GDG members and external partners were asked to update their declaration of interests with any changes by notifying the relevant technical officer.

Follow-up and suggested actions, endorsed for the management of declared conflicts of interest, are summarized below.

- If a member declares an interest that is relevant to the meeting, the WHO Secretariat will note any potential conflicts of interest and summarize them. It will then decide whether and to what extent the member can participate in the development of the guidelines.
- If the conflict is deemed to be significant, the WHO Secretariat will decide if this necessitates the exclusion of the member from participating in the guidelines process or whether their participation should be limited.
- The decisions are made on a case-by-case basis.

¹ Guidelines for declaration of interests (WHO experts) are available at: <https://www.who.int/about/ethics/doi-guide-EN.pdf?ua=1>.

Below is a summary of declared conflicts of interest and how they were managed.

A. GDG members

GDG members with no relevant interests declared on their declaration of interests form and no relevant interests found in their curriculum vitae

Nick Allen, University of Oregon, USA

Steve Allsop, WHO Collaborating Centre for the Prevention of Alcohol and Drug Abuse, National Drug Research Institute, Curtin University, Australia

Gracy Andrew, Sangath, India

Dixon Chibanda, University of Zimbabwe, Zimbabwe

Pim Cuijpers, Vrije Universiteit, the Netherlands

Rabih El Chammay, Ministry of Public Health, Lebanon

Sarah Harrison, International Committee of the Red Cross, Denmark

Andres Herrera, Universidad Nacional Autonoma de Nicaragua, Nicaragua

Mark Jordans, War Child, the Netherlands

Chisina Kapungu, International Center for Research on Women, Washington DC, USA

Eugene Kinyanda, Medical Research Council/Uganda Virus Research Institute, Uganda

Crick Lund, University of Cape Town, South Africa (*Chair*)

Yutaka Motohashi, WHO Collaborating Centre for Research and Training in Suicide Prevention, National Institute of Mental Health, Japan

Olayinka Omygbodun, Ibadan University, Nigeria

George Patton, University of Melbourne, Australia

Atif Rahman, Human Development Research Foundation, Pakistan

Jacqueline Sharpe, Ministry of Health, Trinidad and Tobago

Katherine Sorsdahl, University of Cape Town, South Africa

Wietse A. Tol, Johns Hopkins Bloomberg School of Public Health, USA

Anna Szczegielniak, Tarnowskie Gory, Poland

Lakshmi Vijayakumar, Safety, Health and Environment National Authority, India

GDG members who declared an interest on their declaration of interests form or whose curriculum vitae yielded a potentially relevant interest

Danuta Wasserman, WHO Collaborating Centre on Research, Methods Development and Training in Suicide Prevention, Karolinska Institutet, Sweden.

Professor Wasserman works at Karolinska Institutet's National Centre for Suicide Research and Prevention of Mental Ill-Health, Sweden. She declared that her research unit received a grant from the Youth Aware of Mental Health (YAM) programme in Stockholm. She also noted that YAM was a registered trademark in the European Union, Australia and the USA. The trademark belongs to Mental Health in Mind International AB, a research and development company co-owned by the researchers who developed the YAM programme (among them Danuta Wasserman and Vladimir Carli), and Karolinska Institutet Holding AB.

Action: This interest was deemed insignificant or minimal and unlikely to affect, or be reasonably perceived to affect, Danuta Wasserman's judgement in the development of the guidelines. She is deemed to be participating in the guidelines' development in an individual capacity and not representing any organization. No further action was necessary.

B. External Review Group

External Review Group members, including youth representatives, with no relevant interests declared on their declaration of interests form and no relevant interests found in their curriculum vitae

Tasnia Ahmed, Bangladesh

Lucie Cluver, Oxford University, United Kingdom

Daniel Fung, International Association for Child and Adolescent Psychiatry and Allied Professions, Singapore

Charity Giyava, Zimbabwe

Charlotte Hanlon, Addis Ababa University, Ethiopia

Brian Mafuso, Zimbabwe

Kanika Malik, Sangath, India

David Milambe, Malawi

Mónica Ruiz-Casares, McGill University, Canada

Graham Thornicroft, King's College London, United Kingdom

Carmen Valle-Trabadelo, Mental Health and Psychosocial Support Collaborative, Save the Children

Shamsa Zafar, Health Services Academy, Pakistan

External Review Group members, including youth representatives, who declared an interest on their declaration of interests form or whose curriculum vitae indicate a potentially relevant interest

Delanjathan Devakumar, University College London, United Kingdom

Dr Devakumar declared contributing and having contributed to research relevant to the mental health of adolescents. Research grants were obtained from the United Kingdom of Great Britain and Northern Ireland's National Institute for Health Research and the Medical Research Council, from University College London and Grand Challenges Canada.

Action: These interests were deemed insignificant or minimal and unlikely to affect, or be reasonably perceived to affect, Dr Devakumar's contribution as external reviewer to the guidelines. No further action was deemed necessary.

Lynette Mudekunye, Regional Psychosocial Support Initiative, South Africa

Ms Mudekunye disclosed that she was working for the Regional Psychosocial Support Initiative, a nonprofit nongovernmental organization that helps to promote mental health among adolescents.

Action: These interests were deemed insignificant or minimal and unlikely to affect, or be reasonably perceived to affect, Ms Mudekunye's contribution as external reviewer of the guidelines. No further action was necessary.

Vladimir Carli, Karolinska Institutet, Sweden

Mr Carli works for Karolinska Institutet's National Centre for Suicide Research and Prevention of Mental Ill-Health, Sweden. He declared that his research unit received a grant from the YAM programme in Stockholm. He also noted that YAM was a registered trademark in the European Union, Australia and the USA. The trademark belongs to Mental Health in Mind International AB, a research and development company co-owned by the researchers who developed the YAM programme (among them Danuta Wasserman and Vladimir Carli), and Karolinska Institutet Holding AB.

Action: This interest was deemed insignificant or minimal and unlikely to affect, or be reasonably perceived to affect, Mr Carli's contribution as an external reviewer of the guidelines. No further action was necessary.

William Yeung, ReachOut, Australia.

Mr Yeung reported being employed as administrator at Parks Clinic, a private occupational and psychology clinic. He declared receiving a remuneration (US\$ 1500) from the Partnerships for Maternal, Newborn, Child and Adolescent Health for supporting an Adolescents and Youth Constituency. He contributed, as volunteer, to mental health advocacy for the Black Dog Institute and Young and Well Cooperative Research Centre.

Action: This interest was deemed insignificant or minimal and unlikely to affect, or be reasonably perceived to affect, Mr Yeung's contribution as an external reviewer of the guidelines. No further action was necessary.

Annex 3: Key questions

Q1. Should psychosocial interventions be considered for all adolescents to: improve their positive mental health; prevent mental disorders, self-harm and suicide, and/or other risky behaviours?

Population

All adolescents

Intervention

Universally delivered preventive psychosocial interventions

Comparator

Care as usual

Outcomes

- Critical outcomes: positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm and suicide, risky behaviours (substance use and aggressive, disruptive and oppositional behaviours)
- Important outcomes: risky sexual and reproductive health behaviours, school attendance

Q2. Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, Q2a: violence; Q2b: poverty; Q2c: humanitarian emergencies) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Population

Adolescents exposed to adversities such as violence, poverty and humanitarian emergencies

- 2a: adolescents exposed to violence
- 2b: adolescents exposed to poverty
- 2c: adolescents exposed to humanitarian emergencies

Intervention

Targeted preventive psychosocial interventions directed towards adolescents exposed to adversities specifically

Comparator

Care as usual or another psychosocial intervention

Outcomes

- Critical outcomes: positive mental health (mental well-being and mental functioning), mental disorders (depression, anxiety and disorders specifically related to stress symptoms and diagnoses), self-harm, suicide and risky behaviours (substance use and aggressive, disruptive and oppositional behaviours)
- Important outcomes: risky sexual and reproductive health behaviours, school attendance

Q3. Should psychosocial interventions be considered for pregnant adolescents and adolescent parents to promote their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?**Population**

Pregnant adolescents and adolescent parents

Intervention

Targeted preventive psychosocial interventions directed towards pregnant adolescents and adolescent parents specifically

Comparator

Care as usual or another psychosocial intervention

Outcomes

- Critical outcomes: positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm, suicide and risky behaviours (substance use and aggressive, disruptive and oppositional behaviours)
- Important outcomes: risky sexual and reproductive health behaviours, school attendance, adherence to antenatal and postnatal care, parenting skills (parenting knowledge and attitudes and parenting behaviours), exposure to intimate partner violence

Q4. Should psychosocial interventions be considered for adolescents living with HIV/AIDS to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?**Population**

Adolescents living with HIV/AIDS

Intervention

Targeted preventive psychosocial interventions directed towards HIV-positive adolescents specifically

Comparator

Care as usual or another psychosocial intervention

Outcomes

- Critical outcomes: positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), self-harm, suicide and risky behaviours (substance use and aggressive, disruptive and oppositional behaviours)
- Important outcomes: risky sexual and reproductive health behaviours, school attendance, adherence to antiretroviral therapy

Q5. Should psychosocial interventions be considered for adolescents with emotional symptoms in order to prevent progression to diagnosable mental disorders and to prevent self-harm and/or other risky behaviours?**Population**

Adolescents with emotional symptoms (existing psychological symptoms, but with no existing diagnosis)

Intervention

Indicated preventive psychosocial interventions for adolescents with existing psychological symptom

Comparator

Care as usual or another psychosocial intervention

Outcomes

- Critical outcomes: mental disorders (depression and anxiety symptoms and diagnoses), self-harm and suicide
- Important outcomes: positive mental health (mental well-being and mental functioning), risky behaviours (substance use and aggressive, disruptive and oppositional behaviours), risky sexual and reproductive health behaviours, school attendance

Q6. Should psychosocial interventions be considered for adolescents with disruptive/oppositional behaviours in order to prevent conduct disorders, self-harm and/or other risky behaviours?**Population**

Adolescents with existing disruptive or oppositional behaviour problems, but with no existing diagnosis

Intervention

Indicated preventive psychosocial interventions for adolescents with existing disruptive or oppositional behaviours

Comparator

Care as usual or another psychosocial intervention

Outcomes

- Critical outcomes: conduct disorder, oppositional defiant disorder, self-harm and suicide, risk behaviours (substance use and aggressive, disruptive and oppositional behaviours)
- Important outcomes: positive mental health (mental well-being and mental functioning), mental disorders (depression and anxiety symptoms and diagnoses), risky sexual and reproductive health behaviours, school attendance

Annex 4: Review methodology

The review team used a standardized systematic review methodology based on the process outlined in the *WHO handbook for guidelines development, 2nd edition* (6). The review protocol was shared with GDG members and registered ahead of its launch on PROSPERO (43), a global database of systematic reviews of health, social care and international development programmes with health-related outcomes.

Using an initial review of studies, the team examined existing systematic reviews for PICO question 1. Meanwhile new primary reviews were completed for all other PICO questions.

Table: Methodology per PICO question

PICO questions	Population	Methodology
1	Universal	Existing systematic reviews
2a	Violence-affected	Primary review
2b	Poverty-exposed	Primary review
2c	Humanitarian-exposed	Primary review
3	Pregnant and parenting adolescents	Primary review
4	Adolescents living with HIV	Primary review
5	Emotional symptoms	Primary review
6	Disruptive behaviours	Primary review

Methodology for the review of reviews (PICO question 1)

Inclusion and exclusion criteria

The reviews included studies:

- published between January 2015 and April 2019;
- published in peer-reviewed journals.

No language exclusion rule was applied.

Types of reviews

The review team included reviews of studies from high-, middle- and low-income countries that examined randomized controlled trials, crossover trials, cluster-randomized trials and factorial trials.

Types of comparators

The review team included reviews where the primary comparator was care as usual. This refers to studies that compare outcomes for adolescents enrolled in psychosocial interventions to those who received the usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention).

Types of participants

The review team included reviews of studies with both male and/or female adolescent participants between the ages of 10 and 19 years. In the event of a wider age range beyond these limits, the team included the study if the participants' mean age fell within this age range. Reviews of studies on treatment interventions for adolescents with diagnosed disorders were not included.

Types of interventions

Reviews of studies on interventions that had the following as primary or secondary aims for adolescents were included:

- to promote positive mental health;
- to prevent mental disorders (depression and other mood disorders and anxiety);
- to prevent self-harm and suicide.

Reviews were included if they covered universally delivered preventive psychosocial interventions. Accordingly, interventions had to target all adolescents, not only a high-risk group or adolescents with severe symptoms. The definition for psychosocial interventions is spelt out in the previous section. Interventions could be centred on the school, community (including in humanitarian contexts such as refugee camps), health centre or home. They could also be delivered online, digitally or as combinations of the above. A range of individuals such as teachers, health and non-health professionals, community workers, lay workers and peers can deliver the interventions.

As these were preventive interventions, they were "distinct from treatment, but complementary in a common goal of reducing the burden of mental, emotional, and behavioural (MEB) disorders on the healthy development of children and young people" (28).

Types of outcome measures

Included studies used measurement tools that involved adolescents reporting about themselves, or parents/caregivers or teachers reporting about adolescents. Also included were studies in which researchers observed adolescents directly or assessed them. The table below indicates the manner in which outcomes were categorized. A full list of operationalized terms is available at the end of this annex.

Table: PICO question outcomes

PICO question	
1	<ol style="list-style-type: none"> 1. Positive mental health (mental well-being and mental functioning) 2. Mental disorders (depression and anxiety) 3. Self-harm and suicide 4. Substance use 5. Aggressive, disruptive and oppositional behaviours 6. Risky sexual and reproductive health behaviours 7. School attendance

Search methods used in identifying studies

While the same search strategy used for the primary reviews applied to this review-of-reviews, a systematic review search filter replaced the RCT search filter in each database in order to tailor results.

Study selection

Complete bibliographic records of all search results were exported to Rayyan (87), a second web-based tool for systematic review management. All duplicates were then removed. Next, reviewers worked in pairs to independently review all remaining abstracts, using a short checklist of inclusion criteria. All reviewers convened to discuss any discrepancies in their views. Subsequently, two reviewers independently assessed full-text versions of all studies considered to be potentially relevant. Whenever there were doubts, a third researcher on the team made a ruling on the full text article.

At this stage, the reviewers decided to exclude systematic reviews that did not contain randomized controlled trials. The reviewers also elected to include only reviews from 2015 onwards. This was in line with the advice of the GDG's methodologist, who recommended the use of systematic reviews published within the previous five years.

Reviews that met the requirements were subsequently assessed against a quality rating using the AMSTAR II tool. AMSTAR II is a tool developed for the critical appraisal of systematic reviews (88). It integrates areas related to the risk of bias, reporting coverage, appropriateness of analytic methods used and the disclosure of competing interests. While it is not designed to generate an overall score, it can assist researchers and policy-makers in identifying high-quality reviews and evidence for uptake (89).

After closely reviewing each publication against the AMSTAR II criteria, the online tool generated an appraisal indicating critically low, low, moderate or high quality. Publications that were deemed to be of moderate or high quality were included for the final stage.

There were nine publications from the PICO question 1 search that passed AMSTAR II. Subsequently, all systematic reviews underwent careful review to help identify which ones had outcomes that matched most closely with the outcomes specified by the PICO question.

None of the reviews identified could adequately fit with identified outcomes and cover the predetermined age range. Consequently it was agreed to use a new review published in July 2019 that had been prepared for the HAT initiative and which matched the sample, interventions and outcomes almost exactly.

Primary review methodology (PICO questions 2–6)

Inclusion and exclusion criteria

The reviews included studies that were:

- published between January 2000 and February 2019;
- primary studies from peer-reviewed journals.

No language exclusion rule was applied. More specifically, the reviews met the inclusion and exclusion criteria listed below.

Types of studies

The reviewers included all intervention studies from high-, middle- and low-income countries that were carried out as randomized-controlled, crossover, cluster randomized-controlled and factorial trials.

Types of comparators

The primary comparator was care as usual. This refers to studies that compare outcomes for adolescents enrolled in psychosocial interventions to those who received the usual or routine care available to adolescents in the specific setting (in some cases, this was no intervention, or no accessible intervention). A secondary comparator consisted of studies that compare two psychosocial interventions. These will be analysed separately from those with the primary comparator, but they are not included in this document.

Types of participants

The reviewers included studies that had both male and/or female adolescent participants between the ages of 10 and 19 years. In the event of a wider age range beyond these limits, they included the study in the review if (i) the mean age was within the age range, or (ii) more than 50% of the participants fell within the age range.

Questions 2–4 covered intervention studies on special groups of high-risk adolescents (for example adolescents exposed to adversities such as violence, poverty, humanitarian emergencies, pregnancy, parenthood and living with HIV). Questions 5 and 6 covered interventions for adolescents with existing symptoms of a mental health problem.

The reviewers did not include studies on interventions involving treatment for adolescents with a diagnosed disorder.

Table: Populations per question (PICO questions 2–6)

PICO Questions	Population	Operationalized terms
2a	Adolescents exposed to violence	Adolescents aged 10–19 years who are exposed to interpersonal violence as defined by the authors of the study (family, intimate partner or community violence) as victims or witnesses
2b	Adolescents exposed to poverty	Adolescents aged 10–19 years who are living in poverty, as defined by the authors of the study. Studies could define this using: i) measures of absolute poverty (for instance living on US\$ 1.90 per day); ii) food insecurity; iii) multiple deprivation (including a composite index used for measuring education, income, housing, consumption); iv) asset-based measures, such as standardized asset indices; or v) other (method of measurement will be captured during data extraction)
2c	Adolescents exposed to humanitarian emergencies	Adolescents aged 10–19 years who are/have been exposed to humanitarian emergencies, as a result of conflict, violence, natural disasters or other causes
3	Pregnant adolescents and adolescent parents	Adolescents aged 10–19 years who are pregnant or have a baby (both girls and boys)
4	Adolescents living with HIV/AIDS	Adolescents aged 10–19 years with an HIV-positive diagnosis
5	Adolescents with emotional problems	Adolescents aged 10–19 years with existing psychological symptoms of depression and anxiety, but with no existing diagnosis
6	Adolescents with existing disruptive or oppositional behaviour problems	Adolescents aged 10–19 years with existing externalizing behaviour problems, but with no existing diagnosis

Types of interventions

Intervention studies were included if their primary or secondary aims for adolescents were:

- to promote positive mental health;
- to prevent mental disorders (depression and other mood disorders, anxiety, psychosis);
- to prevent self-harm and suicide.

All intervention studies involved psychosocial interventions. The latter were defined as interventions that use a psychological, behavioural or social approach, or a combination of these (29, 30), to improve psychosocial well-being and/or reduce the risk of poor mental health outcomes. They include programmes designed for adolescents individually or in groups, or for their caregivers and families. They do not include biological interventions (such as pharmacotherapy). Psychosocial interventions that only seek to modify the structural context of the adolescent are not considered within the scope of the guidelines. Accordingly, this excludes interventions consisting solely of structural or societal-level interventions, such as cash transfers or school-climate interventions that lack a psychosocial component.

Interventions could be centred on the school, community (including in humanitarian contexts such as refugee camps), health centre or home. They could also be online or digital, or combinations of the above. A range of individuals such as teachers, health and non-health professionals, community workers, lay workers and peers can deliver the interventions.

Interventions were preventive and thus “distinct from treatment, but complementary in a common goal of reducing the burden of mental, emotional, and behavioural (MEB) disorders on the healthy development of children and young people” (28). The reviewers defined preventive interventions in terms of three distinct subcategories (90). PICO question 1 includes universally delivered preventive interventions. These are programmes that target the whole adolescent population, and are designed to benefit everyone. PICO questions 2–4 include selective or targeted preventive interventions. They focus on individuals or communities at risk of developing mental health problems or risky behaviours owing to factors such as poverty, health status (including HIV and pregnancy), migration status and exposure to violence. PICO questions 5 and 6 include indicated preventive interventions. These are programmes for adolescents who are selected to take part in a study because they have existing symptoms of mental disorder or high-risk behaviours.

Types of outcome measures

Included studies used measurement tools that involved adolescents reporting about themselves, or parents/caregivers or teachers reporting about adolescents. Also included were studies in which researchers observed adolescents directly or assessed them. Outcomes varied depending on the PICO question and are defined in more detail in the next section. A full list of operationalized terms is available at the end of this annex.

Search methods used in identifying studies

Diverse methods were used to identify studies. Systematic searches were conducted on the search engines and databases, PubMed/MEDLINE, PsycINFO, ERIC, EMBASE and ASSIA, using a predetermined set of search terms.

Study selection

Complete bibliographic records of all search results were exported to EPPI-Reviewer (91), a web-based tool for systematic review management. This helped to remove all duplicates.

Using a machine-learning RCT classifier, EPPI-Reviewer automatically scanned all abstracts and identified those whose likelihood of being a randomized controlled trial in the review was lower or greater than 20%, based on key terms. The RCT function in the EPPI-Reviewer is a “smart” mode of classification that assigns each document a score indicating the closeness of its match. It is based on models developed using data from existing reviews. This stage of abstract screening was built on data from nearly 300 000 Cochrane-screened items, and used a pre-built model to identify randomized controlled trials. Mounting evidence shows that when combined with human effort, this type of screening has high sensitivity. It can reduce human error and inter-reviewer disagreement, and helps accelerate the screening while increasing its efficiency. This function can enhance the quality control of manually included or excluded studies, providing another layer of security to reduce human error (92–94). Abstracts that were less than 20% likely to be included, based on the EPPI-Reviewer, underwent a fresh review by just one reviewer. Key search terms were also used to search throughout the abstracts to ensure that no studies were excluded.

Reviewers then worked in pairs to independently examine all remaining abstracts, using a short checklist of inclusion criteria (see Table below). All reviewers convened to discuss discrepancies among the abstracts. Thereafter, two reviewers independently evaluated all full-text versions of studies considered to be potentially relevant. Each study was matched with the relevant PICO question. In the event of doubt, a third researcher on the team made a ruling on the full text article.

Table: Inclusion checklist

Item	Checklist question
1	Is it an individual randomized controlled trial, a cluster randomized controlled trial, a crossover trial or a factorial trial?
2a	Are the participants between the ages of 10 and 19 years? Or, does the mean age of all participants range between 10 and 19 years?
2b	If not, are the participants’ caregivers or teachers reporting on outcomes for adolescents aged between 10 and 19 years?
3	Does the intervention intend to benefit adolescents without a diagnosed mental disorder?
4	Does the intervention aim to promote mental health, prevent mental disorders and/or self-harm and report these as outcomes?
5	Is the intervention a psychosocial intervention, using psychological or social approaches, or a combination of the two?

Data extraction

A data extraction form was developed in order to obtain all the necessary information from the included studies.

The review team extracted data from included studies on the key areas listed below:

- study characteristics including setting, population, research design, intervention details and screening tools;
- risk of bias and study quality, using the Cochrane risk of bias tool for randomized studies, including random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting and other sources of bias;
- type of control group, outcome category, instrument, time point, sample size of intervention and control groups, and results of interventions on relevant outcomes (for example, means and standard deviations), a calculated standard mean difference and 95% confidence intervals (95).

Authors were requested by email to provide missing data, which were included if received within the deadline. Studies appearing in multiple publications were treated as a single study.

Throughout the data extraction period, an independent senior reviewer continuously verified a set quantity of study characteristics from the extracted information. A second independent reviewer double-checked all entries fully for risk of bias and outcome-data extraction. All changes and corrections were recorded. The reviewers held regular quality-control meetings, approximately once weekly, to address concerns as they arose.

Data points

Follow-up post-intervention data points were categorized according to short-, medium- and long-term outcomes (see Table below). However, data from across all time points combined were used in the meta-analyses for this process.

Table: Coding of data from different time points

Outcome	Time range
Short-term outcome	≤2 months after the completion of the intervention
Medium-term outcome	>2–12 months after the completion of the intervention
Long-term outcome	>12 months after the completion of the intervention

Data analysis

Effect estimates from included studies were classified according to the outcome domain they represented and the length of follow-up. Effect estimates were transformed into standard mean difference – a preference for Cohen's d. Whenever binary outcomes were reported, odds ratios were converted to Cohen's d, using the logit transformation.

Meta-analyses were undertaken using robust variance estimation with random effects to account for multiple dependent-effect estimates per study, for instance, where one study contributed several effect estimates to one outcome domain. The reviewers assumed an intercorrelation of 0.8 within studies. They described heterogeneity in terms of τ^2 adjusted for clustering and I^2 .

Meta-regression included categorical predictors to describe intervention and population characteristics that may account for heterogeneity in effectiveness (see below). Meta-regressions were described using the regression coefficient, residual I^2 and residual τ^2 .

As noted above, the primary goal of the analysis was to compare treatment groups with control groups for all PICO questions.

Outcome grouping

For analysis, the outcomes were grouped per PICO question as shown in the table below.

Table: PICO questions 2–6 outcomes

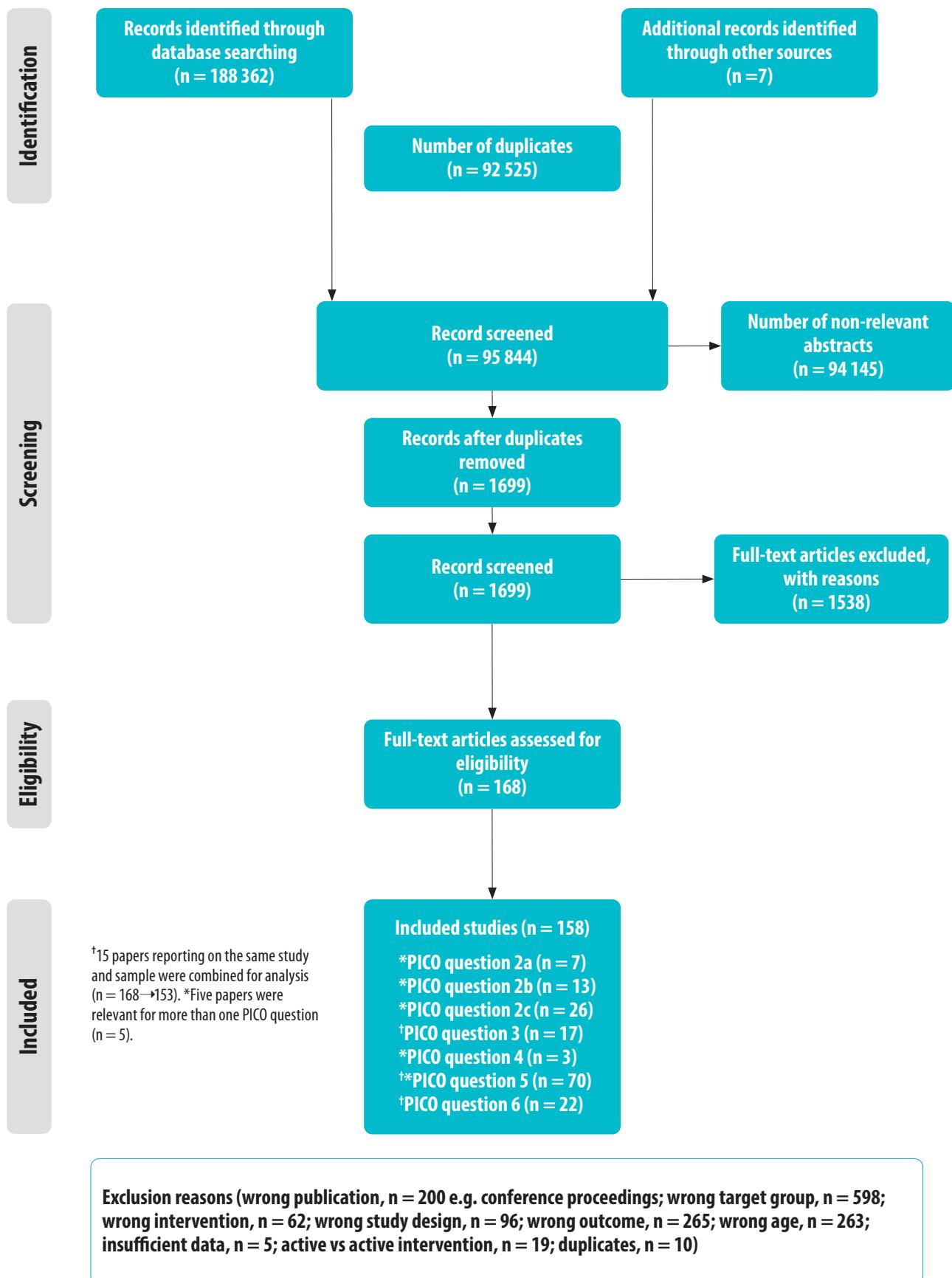
PICO question outcomes	
2	<ol style="list-style-type: none"> 1. Positive mental health 2. Mental disorders (depression and anxiety) 3. Mental disorders (disorders specifically related to stress) 4. Self-harm and suicide 5. Substance use 6. Aggressive, disruptive and oppositional behaviours 7. Risky sexual and reproductive health behaviours 8. School attendance
3	<ol style="list-style-type: none"> 1. Positive mental health 2. Mental disorders (depression and anxiety) 3. Self-harm and suicide 4. Substance use 5. Aggressive, disruptive and oppositional behaviours 6. Risky sexual and reproductive health behaviours 7. School attendance 8. Adherence to antenatal and postnatal care 9. Parenting skills (parenting knowledge and attitudes and parenting behaviours) 10. Exposure to intimate partner violence
4	<ol style="list-style-type: none"> 1. Positive mental health 2. Mental disorders (depression and anxiety) 3. Self-harm and suicide 4. Substance use and aggressive behaviours 5. Disruptive and oppositional behaviours 6. Risky sexual and reproductive health behaviours 7. School attendance 8. Adherence to antiretroviral therapy
5	<ol style="list-style-type: none"> 1. Mental disorders (depression and anxiety) 2. Self-harm and suicide 3. Positive mental health 4. Substance use and aggressive behaviours 5. Disruptive and oppositional behaviours 6. Risky sexual and reproductive health behaviours 7. School attendance
6	<ol style="list-style-type: none"> 1. Mental disorders (conduct and oppositional defiant diagnoses) 2. Self-harm and suicide 3. Substance use 4. Aggressive, disruptive and oppositional behaviours 5. Positive mental health (mental well-being and mental functioning) 6. Mental disorders (depression and anxiety) 7. Risky sexual and reproductive health behaviours 8. School attendance

Subgroup analyses

All analyses were first conducted on the full sample in the first instance. Subgroup analyses are not reported here.

The figure below shows the results of the full search process, including the initial search, removal of duplicates, abstract screening, full text screening and coding of studies per PICO question.

Figure: Flow chart of included studies (PICO questions 2–6)



Full list of operationalized terms

Outcome	Outcome definition	Operationalized terms (examples)
Positive mental health	Mental well-being	Life satisfaction, quality of life, positive self-concept, self-esteem, self-control and self-efficacy
	Mental functioning	Social, emotional and cognitive competencies such as resilience, coping, problem-solving, relationship, interpersonal and communication skills and emotion regulation
Mental disorders	Depression, anxiety	Incidence and prevalence of symptoms and diagnoses of depression and anxiety
	Conduct disorder	Diagnoses of conduct disorder
	Oppositional defiant disorder	Diagnoses of oppositional defiant disorder
	Stress-related disorders	Incidence and prevalence of symptoms and diagnoses of PTSD
Self-harm		Incidence and prevalence of self-harm, suicidal ideation, suicide
Risky behaviours	Substance use	Alcohol use, frequency of alcohol use, alcohol-related problems, alcohol initiation, initiation to drunkenness, binge drinking and alcohol misuse Use of cannabis (marijuana, hashish, tetrahydrocannabinol), opioids (opiates, morphine, heroin, methadone, diamorphine, diacetylmorphine, fentanyl), and/or stimulants (ecstasy, methylenedioxymethamphetamine, methamphetamine, amphetamine and cocaine) Tobacco use, frequency of tobacco use, tobacco initiation
	Aggressive, disruptive and oppositional behaviours	Physical aggression, verbal aggression, conflict, interpersonal violence, perpetration of intimate partner violence, conduct problems, peer problems, externalizing problems, antisocial behaviour, fighting, bullying, anger, criminal behaviour, arrest and incarceration
Risky sexual and reproductive health behaviours		Condom use, early sexual debut, number of partners
School attendance		Enrolment, drop-out rates, school retention rate, school days missed, school attendance rates and intention to return to school
Adherence to antenatal and postnatal care		Adherence to antenatal and postnatal care, initiation of antenatal care, number of antenatal visits, number of postnatal visits, adherence to family planning after birth, adherence to vaccination schedule
Parenting skills	Parenting knowledge and attitudes	Knowledge of child development, knowledge of positive parenting and discipline practices, parenting stress, parenting self-efficacy
	Parenting behaviours	Responsiveness, sensitivity, positive interactions, emotional communication, disciplinary communication, discipline and behaviour management
Exposure to intimate partner violence		Victimization relating to physical, psychological and sexual violence, relationship conflict, dating violence
Improved adherence to antiretroviral therapy		Antiretroviral therapy initiation, implementation, persistence and discontinuation, including reported adherence, viral load, CD4 count, pharmacy adherence measures, in other words medication possession ratio, pill count and pill pick-up, tablet counts and electronic monitoring measures of adherence

Annex 5: Application of GRADE

The Grading of Recommendations Assessment, Development and Evaluation approach was used to assess the quality of the evidence. Domains assessed included:

- risk of bias
- inconsistency
- indirectness
- imprecision
- publication bias.

Risk of bias

Risk of bias assessment was completed to identify any limitations in the study design that may bias the overall estimates of the effect of treatment. The three most important domains considered for the GRADE were:

- randomization
- blinding of outcome assessors (detection bias)
- incomplete outcome data (attrition bias).

Downgrading criteria were based on guiding principles for technical experts, drawn from the 2016 update of the *mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings* (27). The following principles were applied:

- where <10% of studies contributing data have high risk of bias, no downgrading was applied;
- where 10–30% of studies have high risk of bias, downgrade by one;
- where >30% of studies have high risk of bias, downgrade by two;
- unclear risk of bias judgments were not considered high for this purpose.

Inconsistency

Inconsistency refers to unexplained differing estimates of the treatment effect (in other words, heterogeneity or variability in results) across studies. Heterogeneity was assessed using the I^2 test for heterogeneity and its associated *P*-value. The review team agreed to downgrade by one for I^2 test values above 75% and by two for values above 90%, based on the Cochrane guidance for dealing with heterogeneity. Possible grading adjustments were considered by assessing the significance of the *P*-value, and by determining whether heterogeneity could be explained based on the types of intervention, participants, settings or method of outcome assessment.

Where a single study contributed data to an outcome, no downgrading was done for inconsistency.

Indirectness

Indirectness is the degree to which the findings can be generalized, or the extent to which the available evidence differs from the research question in terms of population, intervention, comparator or outcome. The team assessed the generalizability of the findings by considering whether the intervention, participants, settings and methods of assessing outcomes suited the contexts for which the guidelines are intended. (For example, high-income settings and highly trained intervention facilitators do not provide direct evidence for resource-constrained LMIC settings.)

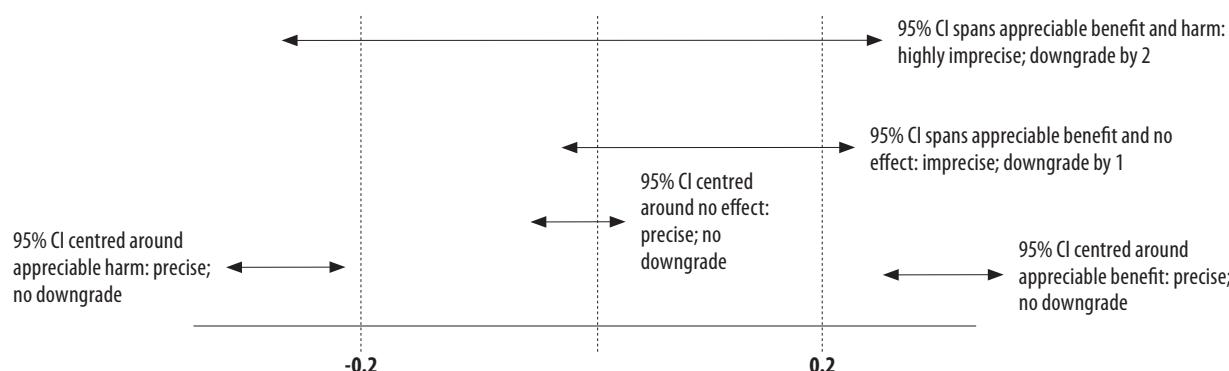
Where a single study contributed data to an outcome, it was necessary to downgrade by one (sometimes in addition to downgrading for other issues related to directness).

Imprecision

Results are imprecise when studies include relatively few participants and few events, leading to wide confidence intervals (CI) relating to the estimate of the effect.

Based on available literature and in consultation with experts, the Evidence Review Team agreed to consider an effect estimate of |0.2| as clinically significant. In order to determine imprecision, the 95% confidence intervals around the effect estimate were assessed.

Figure: Imprecision assessment for positive mental health



Publication bias

Publication bias refers to “the systematic underestimate or overestimate of the underlying beneficial or harmful effect of an intervention or exposure resulting from the selective publication of studies based on the study results; studies in which no effect is found are less likely to be published” (6).

Where 10 or more studies contributed data to an outcome, the standard error (SE) of the effect estimate was calculated using the formula $SE = (95\% \text{ CI upper} - 95\% \text{ CI lower})/3.92$. SE (as a measure of variation) was plotted against the standard mean difference (as the effect measure) to create funnel plots.

The review team visually assessed symmetry and indicated suspected publication bias where appropriate.

Summary of findings table

Narrative presentation of GRADE results

The narrative presentation of GRADE results takes into account the size of the effect measure as well as the strength of the evidence, and is included in the final column of the summary of findings table. It is presented using the plain language summary format recommended by Glenton et al., 2010 (96).

Approximation of relative risk

The Evidence Review Team, whose responsibility it was to present the results of continuous outcomes, initially only presented them as absolute-risk standard mean differences and relative risk measures. The team calculated approximate odds ratios using a method described by Hasselblad & Hedges (97). Da Costa et al. (98) assessed the method in a study and found that it had acceptable accuracy in approximating relative risk.

Annex 6: Evidence summaries per key question

This section includes the evidence summaries for each key question. It incorporates a summary of the included review for PICO question 1 and the results of the primary reviews (PICO questions 2–6), other relevant evidence (specifically, related guidelines and systematic reviews) and a summary of the evidence-to-decision framework.

Age subanalyses were not completed for the primary reviews (PICO questions 2–6) because of the diversity of the age groups for each set of studies. For all PICO questions, the majority of studies reported on mixed age groups (not younger versus older adolescents), as illustrated in Table 1.

Table 1: Age groups of study participants (PICO questions 2–6)

Outcome	Total number of studies included	Studies with participants aged 14 years and younger	Mixed groups	Studies with participants aged 15 years and older	Missing data (not specified)
2a	7	1 (14%)	6 (86%)	—	—
2b	15	3 (20%)	8 (67%)	—	2 (13%)
2c	26	8 (30.8%)	13 (50%)	3 (11.5%)	2 (7.7%)
3	17		12 (70.6%)	2 (11.8%)	3 (17.6%)
4	3	1 (33%)	2 (67%)	—	—
5	70	11 (15.7%)	41 (58.6%)	10 (14.3%)	8 (11.4%)
6	22	5 (22.7%)	14 (63.6%)	—	3 (13.6%)

It was not possible to complete gender subanalyses for the primary reviews (PICO questions 2–6) because very few studies reported results disaggregated by gender. Taking PICO question 5 as an example, 63 of the 70 studies included boys and girls, but only two reported results separately (3.2%). For PICO question 6, on the other hand, 17 studies included both boys and girls, but none of them reported results separately (0%).

Question 1: Should psychosocial interventions be considered for all adolescents to improve their positive mental health and prevent mental disorders, self-harm and suicide, and/or other risky behaviours?

Evidence summary

The Evidence Review Team examined all reviews that qualified for the AMSTAR process (see Annex 4 for methodology). It then closely matched the outcomes from the review prepared for the Helping Adolescents Thrive intervention with most of the outcomes for this key question (7). This review reported on 158 intervention studies covering 33 countries. The majority of trials were conducted in high-income countries (90.5%), across a range of platforms, including school, community, health,

digital and combined settings. Implementers included a range of individuals such as teachers, mental health professionals, lay workers and peers. Positive mental health outcomes were present in 67 included studies in this review. Mental disorders appeared in 48 studies, while aggressive and disruptive behaviours featured in 47 studies. Substance use was present in a further 43 studies.

There have been a number of other relevant reviews on universal interventions. A selection of reviews, graded moderate to high on AMSTAR-2 and with similar outcomes, are summarized below.

Hetrick et al. (99) conducted a Cochrane review on the efficacy of school-based psychological programmes to prevent depression. The review included 83 independent trials. The majority of trials were conducted in the USA (50.6%, n=42 studies). The remaining studies were predominantly carried out in high-income countries, while five were conducted in LMICs. Overall, 52 were randomized controlled trials, with a further 34 trials employing a cluster randomized design. Participants in the included intervention ranged from 8 to 24 years old, with the trial sample size ranging from 18 to 5634 participants. The primary outcome of included studies was depression as indicated either by a clinical depressive diagnosis or self-reported symptoms. The authors found insufficient evidence to support the implementation of universally delivered depression prevention programmes. However, this review focused on a broader age range and was not limited to depression.

Bastounis et al. (100) conducted a review assessing the effectiveness of the Penn Resiliency Program and its derivatives to determine the suitability of its large-scale roll-out. Included studies were conducted across three countries, namely Australia, the Netherlands and the USA, meaning no studies from LMICs were included. Included studies concerned programmes whose goal was to reduce depressive symptoms among adolescents. Three of the included studies (33.3%) used a randomized controlled trial design, and six (66.6%) used a cluster randomized design. The total number of participants across studies ranged from 47 to 1390. The participants in the included studies ranged in age from 9 to 16 years. Data were not provided on gender. The primary outcome assessed in all studies was depression, with anxiety as the most common secondary outcome (55.5%, n=5). This review found no evidence that the Penn Resiliency Program was effective in reducing depression and anxiety. The review focused on a single intervention and exclusively on depression and anxiety.

Ciocanel et al. (101) conducted a review assessing the effectiveness of positive development interventions in promoting positive outcomes and reducing risky behaviour among young people. The overall review included 24 studies, conducted predominantly in the USA (83.3%, n=20 studies). Additionally, four were conducted in Croatia, Ireland, New Zealand and the United Kingdom. All included studies were randomized controlled trials. Overall, the studies included 23 258 participants, ranging in age from 10 to 16 years. Most included studies involved boys and girls (87.5%). Three of the studies only had female participants. Positive development interventions targeting young people had a small but significant effect on academic achievement and psychological adjustment. They showed no significant effects in terms of risky sexual behaviours, problem behaviours or positive social behaviours.

Dunning et al. (102) conducted a review to assess the effectiveness of mindfulness-based interventions. The review included 33 studies, with 3666 participants, ranging in age from 4 to 17 years. No data were reported on the country of implementation and gender. Included studies were all randomized controlled trials, intended to increase mindfulness. The studies reported on various outcomes, among them mindfulness, behavioural outcomes, depression, anxiety or stress, executive function and attention. The meta-analysis found that, relative to inactive controls, mindfulness-based interventions had significant positive effects for the outcome categories of mindfulness, depression, anxiety and/or

stress (when compared to inactive and active controls) and negative behaviours (when compared to inactive controls only).

Werner-Seidler et al. (48) conducted a review assessing depression and anxiety prevention programmes delivered in schools. The review included studies with 81 randomized controlled trials. Most of the studies were conducted in high-income countries, while three targeted interventions were carried out in LMICs. Included studies had a total of 31 794 participants, ranging from 21 participants per study to 2512. Participants in included studies were 19 years or younger. Small effect sizes for both depression and anxiety prevention programmes were detected immediately after the intervention and at 12-month follow-ups. Subgroup analyses showed that universal depression prevention programmes had smaller effect sizes at post-test compared to targeted programmes, but that effect sizes were comparable for universal and targeted programmes for anxiety.

Other relevant studies with self-harm and suicide outcomes

No reviews of universally delivered interventions to prevent self-harm and suicide were identified. However, the review team identified some individual studies that track self-harm and suicide.

Wasserman et al. (103) conducted the cluster randomized controlled trial, Saving and Empowering Young Lives in Europe (SEYLE), in schools across Europe. Schools were randomly assigned to one of three intervention arms, or to the control arm. The first intervention arm was the Question, Persuade and Refer (QPR), a manualized gatekeeper programme to train teachers and school staff in recognizing suicidal behaviour in students and enhance communication between teachers and students. The second intervention arm, Youth Aware of Mental Health Programme, is a universal school-based intervention of short duration to raise awareness about mental health and risk factors associated with suicide and to enhance the life skills needed to deal with adverse life events, stress and suicidal behaviour in an effective way. The third intervention arm, Screening by Professionals programme (ProfScreen), was an indicated intervention for students screened at or above pre-established cut-off points in the SEYLE baseline questionnaire. Participants in the ProfScreen programme were referred to clinical services. The study found that YAM was significantly effective in reducing suicide ideation and attempts. No significant improvements were observed among the QPR or ProfScreen groups.

Signs of Suicide (SOS) is an intervention programme aiming to reduce suicidal behaviour by teaching students to respond to signs of suicide, in themselves and others, and to reduce risk factors associated with suicide (104). Health educators delivered the intervention over a period of two days within the school setting. SOS incorporates two suicide strategies into one programme, to raise awareness of suicide and of issues relating to suicide. Students are taught to recognize the signs and symptoms of depression and how to react to them. The study associated SOS with significantly greater knowledge, more positive and adaptive attitudes about depression and suicide, and ultimately fewer suicide attempts.

Petrova et al. (105) evaluated Sources of Strength in schools in the United States of America. The intervention was built on the theory that healthy and successful coping behaviours can accelerate positive change through natural adolescent social networks. Through interactive learning, the intervention focused on eight protective sources of strength: family support, positive friends, mentors, healthy activities, generosity, spirituality, medical access and access to mental health services. During the delivery phase, peer leaders made use of multiple messaging activities (videos, presentations or public service announcements) to encourage other students to grow and to use their own “sources of strength”. Among other things, this involved reaching out to adults, mentors or peers when in distress, which included suicidal ideation or planning. The study found that modelling the healthy coping

practices of peer leaders helped to increase positive coping skills, overcome barriers to help-seeking and ultimately reduce suicidal behaviour.

Other relevant guidelines

Relevant related guidelines for this key question are summarized below.

WHO's *mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP) – version 2.0*.

The mhGAP intervention guide provides direction on how to assess and manage priority mental, neurological and alcohol and other substance use conditions, including those that have onset during childhood and adolescence (27). The mhGAP intervention guide includes two recommendations on promotive and preventive interventions for adolescents, as given below.

- The implementation of suicide prevention programmes in school settings that include mental health awareness training and skills training can be offered to reduce suicide attempts and suicide deaths among adolescent students.
Strength of recommendation: Conditional.
Quality of evidence: Low.

- Non-specialized health care facilities should encourage and collaborate with school-based life-skills education, if feasible, to promote mental health in children and adolescents.
Strength of recommendation: Conditional.
Quality of evidence: Low.

WHO's guideline on school-based or school-linked health services provided by a health worker (under development).

The school health services guideline will touch on mental health and services delivered by a health worker, in schools or with school involvement, to prevent substance use and to treat, care for and rehabilitate users.

The National Institute for Health and Care Excellence, United Kingdom, has guidelines on universal preventive mental health interventions for adolescents. The most applicable guideline was published in 2009. It deals with social and emotional well-being in secondary education, and targets young people aged 11–19 years (106). The guideline aims to promote good social, emotional and psychological health to protect young people against behavioural and health problems, violence and crime, teenage pregnancy and the use of alcohol and other substances. This guideline includes recommendations on:

- a strategic framework for interventions
- key principles and conditions
- curricula and approaches
- how to work with parents and families
- how to work in partnership with young people
- training and continuing professional development.

Evidence-to-decision framework

Priority of the problem

This issue is a priority as adolescence is a time of rapid physical, social and psychological development. It is, therefore, a time that offers multiple opportunities for health promotion and disease prevention. Previous systematic reviews on interventions to promote mental health and prevent mental disorders

and risky behaviours during adolescence suggest that psychosocial interventions can help improve young people's mental health (7). The interventions can provide basic skills to promote healthy behaviours and prevent risky ones.

Desirability of effects

The desirable anticipated effects are moderate. The review team identified clinically relevant desirable effect sizes for positive mental health ($ES=0.2656, P=0.002, 95\% CI [0.0973, 0.4158]$), aggressive, disruptive, and oppositional behaviours ($ES=0.2938, P=0.0336, 95\% CI [-0.5638, -0.0238]$) and self-harm and suicide ($ES=0.46, 95\% CI [0.25-0.86]$). It also identified statistically significant, clinically irrelevant desirable effect sizes for mental disorders ($ES=-0.0878, P=0.0075, 95\% CI [-0.1508, -0.0248]$).¹

The undesirable anticipated effects are trivial. No undesirable effect sizes were identified. However, some evidence hints at the risk of increasing the use of low-prevalence substances (by alerting people to their existence and possibly giving the false impression that they are widely used). It is important to avoid this.

Certainty of the evidence

The overall certainty of the evidence of effects was low. Three outcomes had evidence whose certainty was very low (positive mental health, substance use and aggressive, disruptive and oppositional behaviours). One outcome had evidence with low certainty (depression and anxiety). Outcomes related to risky sexual and reproductive health behaviours, self-harm and suicide and school attendance were not measured.

Values

There is no major uncertainty or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

The balance between desirable and undesirable effects favours the intervention.

Resources required

Resource requirements (costs) vary. Universal interventions tend to be conducted in settings that naturally capture the whole population, such as schools, resulting in low attrition rates. Such settings are also associated with the efficient use of resources, as they require no screening tools or screening personnel. Additionally, adequately trained and supervised teachers can effectively deliver mental health promotion interventions (107). However, delivering the intervention to the whole population involves considerable costs, depending on the scale. There may be substantial differences between digital and face-to-face interventions, and between countries.

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements (costs) is low. Across existing systematic reviews, it appears that universal school-based programmes are effective in promoting mental health outcomes in adolescents (48, 108). However, few study authors reported intervention components in enough detail to allow for replication and even fewer provided any form of guidance as to how interventions could be scaled up.

¹ "Clinically relevant" denotes both statistical significance ($P<0.5$) and an effect size over the agreed-upon threshold (>0.2).

Cost-effectiveness

The cost-effectiveness of the intervention favours the intervention. There is limited evidence as to the cost-effectiveness of the included studies and to studies with this population. A recent analysis conducted by the WHO Secretariat, using the WHO-CHOosing Interventions that are Cost-Effective approach, showed that universally delivered socio-emotional learning interventions were cost-effective (107).

Equity

The intervention would probably increase health equity for all adolescents. Universal interventions offer the opportunity to target a wide range of risk factors simultaneously, which is particularly pertinent in low-income settings where adolescents are more likely to experience a broad range of adverse life events (45, 46). Another significant advantage of universal interventions is that high-risk adolescents are not easily identifiable by their peers (109). This is of concern for adolescents as they are in a developmental phase, where peer relationships and social standing are particularly salient and formative. However, unless special measures are taken, the intervention may exclude out-of-school adolescents and others among the most vulnerable groups.

Acceptability

The intervention is acceptable to all key stakeholders. Universal interventions to promote mental health and prevent mental disorders may greatly appeal to policy-makers because they can affect a range of health and education outcomes and be incorporated into routine school activities (7). School administrators may find them easier to implement because they do not need to screen and separate students (47, 48, 50). However, given that universal interventions capture a wide audience, low-risk participants may find the included programme less engaging and material on multiple risk factors irrelevant (48). Pursuing a user-centred design approach will significantly strengthen the programme's development and capacity to adapt to different settings. This would involve multiple stages of engagement and prototyping with adolescents, their parents, their teachers and other community stakeholders to coproduce the intervention package.

Feasibility

The intervention is probably feasible. Programmes of longer duration were found to be more effective, while teacher training and support throughout the intervention were highlighted as important implementation factors (110). Researchers noted that resource constraints were likely to be a factor in schools' reluctance to fully commit to interventions, which may lead to programme failure.

Question 2a: Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, violence) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Study characteristics

In total, the review team found seven studies on preventive mental health interventions for adolescents exposed to violence. Included studies were conducted across three countries, with six of the studies (85.7%) being carried out in high-income countries. Five studies (71.4%) were conducted in the USA, and one in the Netherlands. Only one included study came from a low-income country, the Democratic Republic of Congo.

All included studies (100%) were randomized controlled trials. In total the studies recruited 602 participants, 62% (n=372) of whom were girls. Two studies (28.6%) specifically targeted girls only. The mean age across all studies was 14.5 years old, with an age range from 8 to 25 years. All included studies were in English.

Of the seven studies, two (28.6%) used screening tools to identify participants for the intervention. One used a modified version of the 34-item Life Events Scale, and another used a modified version of the Traumatic Life Events Questionnaire. One study used a self-report questionnaire, and the remaining four (57.1%) relied on referrals either from child protection services, school or clinic staff.

All studies reported outcomes related to the prevention of mental disorders, namely depression, anxiety and disorders specifically related to stress. Four studies (57.1%) reported on outcomes relating to positive mental health. Four studies (57.1%) reported on aggressive, disruptive and oppositional behaviours, while one reported on substance use. No studies reported on self-harm and suicide, risky sexual and reproductive health behaviours, or school attendance.

Intervention implementation

Three studies (42.9%) were implemented in schools. Two (28.6%) were conducted in the community and one was conducted in a health care centre. One study was an internet-based, online-only intervention. Mental health professionals implemented three interventions (42.9%), social workers conducted another two (28.6%), while school clinicians carried out one study. In the online intervention, a community manager provided a limited amount of support. Three of the studies (42.9%) did not specify the amount of time implementers spent in training. In the other four studies, training time ranged from 10 to 480 hours. All studies provided supportive supervision for the implementers. Five studies (71.4%) used both individual and group sessions. Two studies (28.6%) used individual sessions only. Only one of the included studies reported adolescent involvement in developing the intervention.

Meta-analysis results

Table 2: Overall effect sizes per outcome (PICO question 2a)

	All time points			
	Effect size	P-value	95% confidence intervals	
Positive mental health	0.1872	0.3098	-0.3735	0.7479
Mental disorders (depression and anxiety)	-0.3388	0.3769	-1.2192	0.5415
Mental disorders (disorders specifically related to stress)	0.0018	0.9967	-1.0461	1.0497
Self-harm and suicide				
Aggressive, disruptive and oppositional behaviours	-0.3466	0.4184	-1.5746	0.8814
Substance use				
Risky sexual and reproductive health behaviours				
School attendance				

Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

Gillies et al. (111) conducted a Cochrane review on psychological therapies for children and adolescents exposed to trauma. The objective of this systematic review was to assess the effectiveness of psychological therapies in preventing PTSD and associated negative emotional, behavioural and mental health outcomes in children and adolescents who have been exposed to a traumatic event, including violence. In total, 6201 participants from 51 trials were included in the review. Ten trials included only adolescents, 20 trials included only children, and two trials included only preschool children. All other trials involved both children and adolescents. In 12 trials the participants had been exposed to sexual abuse, while in 10 they had been exposed to war or community violence, in six to physical trauma, in another six to natural disaster, and in three to violence. Participants from the remaining trials had been exposed to a wider range of traumas. The meta-analyses in this review provided some evidence of the effectiveness of psychological therapies in preventing PTSD and reducing symptoms in children and adolescents exposed to a traumatic event. However, the authors' confidence in these findings is limited owing to the quality of the included studies and their substantial heterogeneity. In addition, only 10 of the 51 included studies were on adolescents.

Guidelines

No similar guidelines were found regarding psychosocial interventions to help adolescents exposed to violence improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours.

Child maltreatment

WHO has published guidelines for the health sector's response to child maltreatment. The guidelines relate to this population, albeit from a narrower perspective (37). Published in 2019, the guidelines specifically examine health sector responses to the maltreatment of children aged 0–18 years. However, owing to a limited evidence base, several of the guidelines' mental health recommendations are drawn from the mhGAP guidelines (27). Another related document is the WHO clinical guideline, *Responding to children and adolescents who have been sexually abused*, published in 2017 (112). The guidelines aim to help frontline health workers, primarily from low-resource settings, provide evidence-based, trauma-informed quality care to survivors of sexual abuse. The guidelines stress the importance of promoting safety for the survivors, as well as offering choices and respecting the wishes and autonomy of children and adolescents. They provide recommendations for post-rape care and mental health care, as well as approaches to minimize distress when taking medical history, conducting examinations and documenting findings.

Exposure to partner and sexual violence

The WHO guidelines *Responding to intimate partner violence and sexual violence against women: WHO clinical and policy guidelines* is also relevant (35). This document offers evidence-based guidance to health care providers on appropriate responses to intimate partner violence and sexual violence against women. They include guidance on clinical interventions and emotional support.

Evidence-to-decision framework

Priority of the problem

Violence against adolescents is a significant problem worldwide and may result in a number of issues such as PTSD, depression and increased risky behaviour. The evidence base for effective interventions for adolescents who have been exposed to violence is limited, and so is reporting on mental health outcomes.

Desirability of effects

It is not possible to substantiate the desirable effects because no significant effects were identified and not enough evidence is available. The undesirable effects are inconsequential as no significant effects were identified.

Certainty of the evidence

The overall certainty of the evidence of effects, is very low. All five outcomes had very low certainty of evidence (positive mental health, depression and anxiety, disorders specifically related to stress, substance use and aggressive, disruptive and oppositional behaviours). Outcomes related to risky sexual and reproductive health behaviours, self-harm and suicide, and school attendance were not measured.

Values

There is no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. Whether people valued specific outcomes was not reviewed. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

It is unknown whether the balance between desirable and undesirable effects favours the intervention or the comparison.

Resources required

Overall, resource requirements (costs) vary. Delivering interventions in a group format was found to be cost-effective (8, 113). Web-based interventions were able to reach a greater number of participants at a low cost (114). Only one included study was conducted in a LMIC (8). This study, which implemented trauma-focused cognitive behavioural therapy (CBT), found that non-clinically trained workers could successfully carry out this form of intervention, which has potential implications for cost-effectiveness. Therefore, evidence for the resource requirements (costs) is limited.

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements is very low. No included studies detailed the resources required.

Cost-effectiveness

There were no included studies on the cost-effectiveness of the intervention and whether costs favour the intervention or the comparison. There is little evidence as to the cost-effectiveness of the included studies and of studies with this population.

Equity

These interventions would probably increase the impact on health equity. The majority of participants came from child and protective service referrals, or teacher or parent referrals. In some cases, this may be successful, but given that many experiences of violence are often underreported and some types are highly stigmatized (such as sexual abuse), the recruitment methods employed by most of these studies have a limit. They may exclude the most vulnerable, in-need adolescents from such interventions, and is a broader issue for the field of health.

A few studies introduced a low threshold to participation and easy enrolment in order to include as many children who may need the interventions as possible; however, this could lead to high dropout rates, as users fully realize the consequences of their participation only after they start taking part (8, 114, 115).

Little evidence was found related to health equity aside from gender differences. One study reported differential intervention effects across gender (116). Girls reported significantly higher levels of initial problems related to emotional distress (116). Additionally, there were greater treatment effects shown for boys than girls when it came to physical abuse in the context of intimate partner violence (116).

Another study, however, reported finding no effect by gender, yet more girls were lost to follow-up than boys (117).

Acceptability

These interventions are probably acceptable to all key stakeholders. The stigma of experiencing violence, particularly sexual violence, may prevent individuals from disclosing exposure, and therefore pose a difficulty to recruitment. Some interventions reported that it was better to recruit through community contacts, as these children may be already involved in community resources; however, schools are better placed to provide space, time and personnel, if properly supported and introduced (113, 116). A strong collaborative relationship with the local- and state-level child welfare agencies is necessary to enhance recruitment within this population and to improve the process of obtaining consent and/or permission (113).

Feasibility

Across the board, the implementation of interventions varied. Exposure to violence, specifically sexual violence, may go undisclosed, which may affect recruitment. The possibility of stigma may affect the recruitment and retention of participants. Implementing interventions with mental health professionals requires shifting clinicians from some of their other day-to-day activities (118). One study noted that with training, nonclinical facilitators could deliver effective therapeutic interventions that are culturally appropriate and replicable (8).

Question 2b: Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, poverty) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Study characteristics

The review identified 13 studies in total. The studies were conducted across eight countries, ranging between low- and high-income. Over half of the studies took place in high-income countries ($n=8$, 61.5%).

Just over half of the intervention studies ($n=7$, 53.8%) used a cluster randomized controlled trial design to evaluate the intervention. Six studies (46.2%) used an individual randomized controlled trial design.

The sample size of the intervention studies ranged from 41 to 3115 participants, with a mean of 786.6 and a median of 237 participants. In total, there were 10 226 participants included in the review. Of the total 13 studies, nine reported on the participants' mean age. Eight studies fell into the 10–14.99 mean age group (61.5%) and one was in the older group (ages 15–19) (7.7%). The remaining

four studies reported the age range among the participants. Three of the studies (23.1%) included participants aged 12–16 years, while the other included participants aged 11–18 years. All included studies were in English.

All studies reported on the percentage of boys and girls who took part in the intervention; of these, the mean percentage of girls was 64.8% of the full sample. Two (15.4%) of the studies included only girls in the trial and one (7.7%) included only boys.

Almost all of the intervention studies ($n=12$, 92.3%) measured mental disorders (anxiety and/or depression) in adolescents. Ten (76.9%) trials measured positive mental health, and seven measured aggressive, disruptive and oppositional behaviours (53.8%). One trial (7.7%) also measured substance use and disorders specifically related to stress. None of the included studies measured self-harm and suicide, risky sexual or reproductive health behaviours, or school attendance.

Intervention implementation

The majority of interventions were delivered in schools ($n=9$, 69.2%). Two interventions (15.4%) were delivered in a community setting, one was delivered at home (7.7%), and one was delivered through a combination of home and community settings. The interventions were delivered using a range of implementers. Four used a mental health professional (30.8%). Lay workers delivered two (15.4%), while two trials used teachers, other non-health professionals or a combination of implementers. One intervention did not specify the implementer. Seven of the studies indicated the amount of time implementers spent in training. Total training ranged from 8 to 64 hours, with an average of 28.6 hours.

The majority of interventions were delivered using groups ($n=11$, 84.6%), with only one being delivered to individuals (7.7%). One intervention used a combination of group and individual approaches. Two studies did not indicate the intervention's total contact time. Of those that did report time, contact ranged from 1.5 hours to 48 hours (apart from one intervention that had a long follow-up period and included over 150 hours of contact). The median contact time was 15.5 hours. Only two of the studies (15.4%) explicitly involved adolescents in developing the intervention, while four (30.8%) tailored their intervention approach to suit individual adolescents' needs.

Meta-analysis results

Table 3: Overall effect sizes per outcome (PICO question 2b)

	All time points			
	Effect size	P-value	95% confidence intervals	
Positive mental health	0.2443	0.2397	-0.2020	0.6906
Mental disorders (depression and anxiety)	-0.2428	0.1332	-0.5763	0.0907
Self-harm and suicide				
Aggressive, disruptive and oppositional behaviours	-0.1063	0.1492	-0.3325	0.1199
Substance use				
Mental disorders (disorders specifically related to stress)				
Risky sexual and reproductive health behaviours				
School attendance				

Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

There is no relevant Cochrane review of evidence concerning preventive psychosocial interventions to improve the mental health of adolescents exposed to poverty. A 2008 Cochrane review examines what effect cash transfers have on the health of children in circumstances of relative poverty (119). In high-income countries, researchers have established a strong consistent link between relative poverty and poor child health and well-being. This evidence review, however, found no effects on child health, measures of child mental health or emotional states due to exposure to poverty.

Guidelines

The review team found no guidelines on psychosocial interventions to improve the positive mental health of adolescents exposed to poverty or to prevent mental disorders, self-harm and/or risky behaviours among them. As many economists disagree on how to measure poverty, the mental health professionals and social scientists in the studies surveyed lacked the specificity (in the majority of cases) to determine if, and how, the population targeted was in fact poor.

Evidence-to-decision framework

Priority of the problem

This issue is a priority as poverty disproportionately impacts children and adolescents. The consequences of poverty are vast, negatively affecting adolescents in a number of ways. Importantly, the stress of living in poverty may increase susceptibility to mental health issues. Experiencing poverty during adolescence can disrupt and affect an individual's development, productivity and health outcomes over the long term.

Desirability of effects

It is not possible to substantiate the desirable effects because no significant effects were identified. The undesirable effects are inconsequential as no significant effects were identified.

Certainty of the evidence

The overall certainty of the evidence on effects, is very low. The certainty of evidence (positive mental health, depression and anxiety, disorders specifically related to stress, substance use and aggressive, disruptive and oppositional behaviours) was very low in all five outcomes. Outcomes related to school attendance, self-harm and suicide, and risky sexual and reproductive behaviours were not measured.

Values

There is no major uncertainty or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

It is unknown whether the balance between desirable and undesirable effects favours the intervention or the comparison.

Resources required

Resource requirements (costs) vary across the included interventions. Interventions implemented by professionals were more costly and often less well received compared to those implemented by local

or school-based personnel (120, 121). Class-wide interventions were largely used and found to be cost-effective; however, while smaller group formats proved to be more costly for schools, they did provide more individual practice particularly for high-risk students (122).

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements (costs) is very low. There is limited research on the resources needed to implement psychosocial interventions for adolescents living in poverty, particularly in LMICs (120, 123). The lack of research makes it difficult to draw conclusions on the cost-effectiveness of interventions. One study found that a resilience programme that used community members as implementers – a more cost-friendly solution – achieved similar results as interventions implemented by school teachers or external professionals, and did so faster and with fewer resources (120).

Cost-effectiveness

There were no included studies that examined the cost-effectiveness of the intervention and whether costs favoured the intervention or the comparison. Little evidence exists on the cost-effectiveness of the included studies and of studies concerning this population.

Equity

These interventions would probably increase the impact on health equity in this population. Considering the vulnerability of the population under review, some trials experienced particularly high rates of loss-to-follow-up (121, 124, 125). This trend necessitates early intervention before older adolescents drop out and disengage from schools and community structures, making it difficult to recruit them (126).

The included studies found that gender may affect the outcomes of psychosocial interventions for adolescents living in poverty. The majority of studies included an even split between boys and girls enrolled. However, some studies found that interventions were more effective for boys (127, 128) while others found them to be more effective for girls (129). Other trials found no effect for gender, despite pre-trial expectations (130).

Acceptability

The interventions are probably acceptable to key stakeholders. Authors of the included studies have noted how interventions need to be culturally relevant in order to be attractive and meaningful to participants (76, 127). They should also be sensitive to the climate surrounding the participant to avoid motivating adolescents when they are unable to access resources – such as interventions with a focus on goal-setting and information around further education with few support structures in place. Such inconsistencies can exacerbate depression or anxiety (130). One study noted the usefulness of implementing an intervention when frameworks that promote well-being in schools have undergone broader development (124). There is a need for qualitative studies to assess acceptability and motivations (126, 131).

Feasibility

The feasibility of the intervention varies across the included interventions. There is a need to adopt a train-the-trainer model using knowledgeable and experienced teachers to make the interventions more scalable to a large population of school-aged children in LMICs (127). One study found delivering booster sessions to be difficult because many students changed school (123). Studies that were not very resource-heavy, logically complex or culturally specific had greater potential for future implementation (120, 131).

Question 2c: Should psychosocial interventions be considered for adolescents exposed to adversities (specifically, humanitarian emergencies) to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Study characteristics

In total, 26 studies were found, covering 14 predominantly LMICs (80.8%, n=21 studies). Of the studies conducted in high-income countries, three covered Israel (11.5%), while the other two concerned Germany and the USA. All included studies were in English.

The aim of all included studies was assessing interventions for prevention of mental disorders, namely depression, anxiety and disorders specifically related to stress, such as PTSD. Eleven studies (42.3%) also intended to evaluate interventions for promotion of positive mental health, targeting aspects such as prosocial behaviour, self-efficacy and mental functioning. Eight studies reported on aggressive, disruptive and oppositional behaviours (30.8%). One study examined interventions to prevent self-harm, while another reported on strategies to prevent substance use. No studies reported on risky sexual and reproductive health behaviours or school attendance.

The majority of studies used a randomized controlled trial design (76.9%, n=20 studies). Six studies (23.0%) employed a cluster randomized controlled trial design. Sample size in the included studies ranged from 20 to 2000. Altogether the studies recruited 7356 participants. The mean sample size was 283 participants.

Of the included studies, 21 (80.8%) reported on mean age. Participants in the studies ranged in age between 9 and 19 years. Two studies (7.7%) reported on the participants' school grade but left out age. Most studies provided data on the participants' gender (96.2%, n=25 studies). Two studies (7.7%) specifically targeted female participants, while two specifically targeted male participants (7.7%). Of the studies that reported on gender, on average 47.7% of the participants were female while 52.2% were male.

Twelve studies (48.0%) selected participants based on their location and proximity to a humanitarian emergency setting. Eleven studies (42.3%) used a screening tool or questionnaire to choose participants. Three studies chose participants through descriptive inclusion criteria, namely female refugee students (n=1 study), former male combatants and child soldiers who had experienced combat (n=1 study), and caregivers of Burmese origin (n=1 study).

Intervention implementation

Of the 22 included studies, 16 (61.5%) were conducted in schools. Five studies (19.2%) were conducted in community settings. One study was conducted in a camp for internally displaced people, and another in a participant's home. One of the included studies was conducted digitally. Two studies did not specify intervention settings. Mental health professionals carried out 11 of the studies (42.3%), while teachers conducted four studies (15.4%). Lay workers conducted five studies (19.2%), while a professional carried out one study. As indicated, one study was digitally conducted and did not require an implementer. Four studies (15.4%) did not report on the implementer. Training time for implementers in the included studies ranged between 8 and 128 hours. Eleven studies (42.3%) did not report on the training received by implementers, and 17 studies (65.4%) supervised the implementers. Twenty studies (76.9%) were delivered using the group format, and two studies (7.7%) were delivered to individuals. Three studies (11.5%) used both group and individual formats. One study did not specify

the intervention delivery format. No studies reported adolescent involvement in developing the intervention.

Meta-analysis results

Table 4: Overall effect sizes per outcome (PICO question 2c)

	All time points			
	Effect size	P-value	95% confidence intervals	
Positive mental health	0.3941	0.0636	-0.0273	0.8154
Mental disorders (depression and anxiety)	-0.3783	0.0136*	-0.6698	-0.0869
Mental disorders (stress disorders)	-0.4458	0.0024*	-0.7108	-0.1808
Self-harm and suicide				
Aggression, disruptive and oppositional disorders	-0.1562	0.4535	-0.6251	0.3126
Substance use				
Risky sexual and reproductive health behaviours				
School attendance				

*P<0.05. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

The review team conducted a sensitivity analysis to establish whether there was any difference in the effects of interventions that used a mental health screening tool to recruit participants into the study, compared to those that did not. This analysis is shown in Table 4a. No significant differences were noted.

Table 4a: Sensitivity analysis for screening-in (PICO question 2c)

	Screening – YES				Screening – NO				Difference			
	Effect size	P-value	95% confidence intervals		Effect size	P-value	95% confidence intervals		Effect size	P-value	95% confidence intervals	
Positive mental health	0.2904	0.1716	-0.1692	0.7501	0.6250	0.2577	-0.8408	2.0909	-0.2613	0.6149	1.4942	0.9717
Mental disorders (depression and anxiety)	-0.4163	0.0965	-0.9240	0.0915	-0.3545	0.0877	-0.7722	0.0633	-0.0498	0.8657	-0.6594	0.5597
Mental disorders (stress disorders)	-0.5618	-0.0526	-1.1313	0.0077	-0.3598	0.0084*	-0.5974	-0.1222	-0.1572	0.5490	-0.7003	0.3860
Self-harm and suicide	-0.06		-0.39	0.28	NA							
Aggression, disruptive and oppositional disorders	-0.3236	0.3894	-1.2583	0.6112	-0.0077	0.9525	-0.9408	0.9254	-0.3579	0.3470	-1.2823	0.5665
Substance use	NA				-0.77		-0.89	-0.65				
Risky sexual and reproductive health behaviours												
School attendance												

*P<0.05. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

Gillies et al. (111) conducted a Cochrane review on psychological therapies for children and adolescents exposed to trauma. The objective of this systematic review was to assess the effectiveness of psychological therapies in preventing PTSD and associated negative emotional, behavioural and mental health outcomes in children and adolescents who have been exposed to traumatic events (including humanitarian emergencies). The review included 6201 participants from 51 trials. While 20 studies included only children, two others involved only preschool children and another exclusively concentrated on adolescents. All other studies involved children as well as adolescents. Participants had been exposed to sexual abuse in 12 trials, to war or community violence in 10, to physical trauma in six, to natural disasters in another six and to violence in three. Participants from the remaining trials had been exposed to a wide range of traumas. The meta-analyses in this review provided some evidence of the effectiveness of psychological therapies in preventing PTSD and reducing symptoms in children and adolescents exposed to a traumatic event. However, confidence in these findings is limited because of the quality of the included studies and fact that they are largely heterogeneous.

Purgato et al. (132) conducted a Cochrane review on the effectiveness and acceptability of psychological therapies for the treatment of people with mental disorders (such as PTSD, depression and anxiety) who live in LMICs affected by humanitarian crises. Review results showed low-quality evidence of the role of psychological therapies in reducing PTSD, depression and anxiety symptoms in adults living in LMICs affected by humanitarian crises. Some trials focused on children and adolescents, which also provided low-quality evidence in terms of reducing PTSD. However, concerns were raised on the risk of bias of the included studies and of substantial heterogeneity.

A review by Tol et al. (62), focusing on interventions for mental health and psychosocial support in humanitarian settings, included a subanalysis on children and adolescents. Their multi-method review found that psychosocial interventions improved outcomes related to internalizing symptoms among children. Most notably, while commonly implemented interventions were less rigorously researched and evaluated, high-quality evidence-based interventions tended to be less widely implemented.

Guidelines

The search yielded no evidence-based guidelines for psychosocial interventions to help adolescents exposed to humanitarian emergencies improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours. There are guidelines focusing on adolescents within this targeted group, but none that deal specifically with mental health (for instance, preventing mental disorders and promoting positive mental health).

Evidence-to-decision framework

Priority of the problem

This issue is a priority because adolescents affected by humanitarian emergencies are particularly vulnerable. LMIC settings are disproportionately affected by such emergencies. Mental health services are not readily available in these settings, despite the substantial need (133).

Desirability of effects

The anticipated desirable effects are moderate. Clinically relevant desirable effects were identified for depression and anxiety ($ES=-0.378, P=0.0136, 95\% CI [-0.6698, -0.0869]$) and disorders specifically related to stress ($ES=-0.4468, P=0.0024, 95\% CI [-0.7108, -0.1808]$), substance use (results from a single

trial: ES=0.77, 95% CI [0.65-0.89]) and self-harm and suicide (results from a single trial: ES=-0.06, 95% CI [-0.39 - 0.28]).¹ The anticipated undesirable effects are trivial, to the extent that they were measured, as no significant effects were identified.

Certainty of the evidence

The overall certainty of the evidence on effects is low. Four outcomes had very low certainty of evidence (positive mental health, depression and anxiety, self-harm and suicide, aggressive and disruptive and oppositional behaviours). One outcome had low certainty of evidence (disorders specifically related to stress). Another had moderate certainty of evidence (substance use), although this was the result from a single trial, and some items on the rating system will result in high certainty ratings for outcomes where there is only one study. Outcomes related to risky sexual behaviours and school attendance were not measured.

Values

There is no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

The balance between desirable and undesirable effects favours the intervention.

Resources required

Resource requirements for the included interventions vary. The majority of studies were implemented in schools, in groups and by mental health professionals. Interventions conducted in particularly resource-poor areas had to rely on non-clinicians to carry out programmes (8, 134). Few interventions targeting the mental health of adolescents who have been exposed to disaster have undergone rigorous scientific evaluation; those that have are typically resource intensive. Web-based self-help approaches may help to address critical gaps in the availability of resources to deploy interventions (135).

Certainty of the evidence on required resources

Overall, the certainty of the evidence on resource requirements (costs) is low. Evidence-based practices originally developed for high-income settings may be adapted and can be beneficial for use in low-income contexts (136, 137). Interventions that are manualized, simple and that do not require a mental health professional may be particularly well suited to humanitarian settings (138). There is a need for cost-effective, scalable solutions to support communities affected by humanitarian emergencies (135).

Cost-effectiveness

There were no included studies that examined the cost-effectiveness of the intervention, and whether the cost-effectiveness favoured the intervention or the comparison. As such, there is little evidence as to the cost-effectiveness of the included studies and of studies with this population.

¹ "Clinically relevant" denotes both statistical significance ($P < 0.5$) and an effect size over the agreed-upon threshold (> 0.2).

Equity

These interventions would help boost the impact on health equity. Equity is a critical consideration for this group. Overall, young people exposed to humanitarian emergencies are less able to access care for both physical and mental health, and often are no longer in school (52). As such, the accessibility and flexibility of the implementation setting, and of the implementer, are chief considerations. The included studies in this sample reflected a variety of implementer type and structure for interventions targeting adolescents at various stages of exposure to humanitarian emergencies. The interventions were diverse in type and target group. They also reflected the most representative sample of LMIC populations of any PICO question. This population overwhelmingly resides in LMICs.

The included studies found that gender may affect the outcomes of psychosocial interventions for adolescents exposed to humanitarian emergencies (136, 137, 139). Moreover, one study found that dropout rates were higher for boys than girls (64, 140, 141).

Acceptability

The interventions are probably acceptable to all key stakeholders. Interventions need to be culturally relevant to the target population. Adapting the intervention to its specific context of delivery is considered critical if its implementation is to succeed (142). Additionally, the use of familiar activities, group work and local individuals to facilitate interventions has proved key in making them acceptable (9). Established evidence-based psychological interventions (such as CBT) can be criticized for not incorporating and strengthening existing community resources or collective coping capacities. This highlights the need for collaboration and transparency in such high-stress settings (141).

Feasibility

These interventions are probably feasible, given that generally those that were tested in LMICs did not depend on mental health professionals. However, programme managers, trainers and supervisors may have difficulty in gaining access to conflict contexts to implement planned interventions (64, 138). The delivery method of engaging and training community-based lay facilitators expands human resource options and increases the potential for scale-up (137).

Question 3: Should psychosocial interventions be considered for pregnant adolescents and adolescent parents to promote their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Study characteristics

In total, 17 studies were identified, covering three high-income countries: the USA (n=14 studies, 82.4%), Canada, (n=2, 11.8%) and Chile (n=1; 5.9%).

The majority of studies (n=15, 88.2%) used a randomized controlled trial design to evaluate the intervention. One study (5.9%) used a cluster randomized controlled trial, while another used a factorial design.

The studies' sample size ranged from 20 to 1233 participants, with a mean of 190 and a median of 106 participants. In total, the review included 3245 participants. Of the total 17 studies, 15 reported on the mean age of the participants and the remaining two reported on the age range. Most of the studies included adolescents who were 15 or older (n=16, 94.1%). One study included participants across a wide age range, from 12 to 22 years old.

Fourteen (82.4%) of the studies included only girls in the trial while one included only boys. One study included both boys and girls, and another did not explicitly specify the sex but implied that only girls were enrolled.

Twelve intervention studies (70.6%) measured mental health disorders as outcomes (anxiety and depression). Nine trials (52.9%) measured positive mental health. Some trials also measured parenting skills (n=8, 47.1%) and substance use (n=3, 17.6%). School attendance, risky sexual and reproductive health behaviours and adherence to antenatal and postnatal care were measured in each of two trials (11.8%). None of the included studies measured self-harm and suicide, or aggressive, disruptive and oppositional behaviours, or exposure to intimate partner violence.

Intervention implementation

Participants' homes constituted the most common delivery setting (n=7, 41.2%), with a further three studies (17.6%) conducted in a health centre, and two (11.8%) in a school setting. Two other studies (11.8%) were conducted in a community setting. Three interventions were delivered through a combination of these settings. The most common type of implementer across studies was a lay health worker (n=7). One study was delivered digitally and with the use of pamphlets, thereby dispensing with personnel. Meanwhile mental health professionals conducted three (17.6%) other studies. Health professionals who were not mental health specialists delivered two interventions, while mental health professionals and lay workers teamed up to implement two others. Two studies did not specify the implementer. Six of the studies indicated the length of time spent on training implementers. This ranged from 1 to 500 hours, with the median being 38 hours. Over half of the interventions were delivered to individuals (n=10, 58.8%) while three were delivered within a group or using a combination of individual and group formats. One study used videos and pamphlets. Overall, 15 studies indicated the intervention's total contact time. Of those studies that did report time, contact ranged from 4 to 43 hours with a mean of 18 hours of intervention. However, five (29.4%) studies had long follow-ups, ranging from 6 months to 2 years postpartum. This was a specific feature of interventions for pregnant and parenting adolescents, not reflected in other mental health interventions for adolescents. Less than a third of studies (n=5, 29.4%) explicitly involved adolescents in developing the intervention; 10 studies (58.8%) tailored their intervention approach to suit individual needs and preferences.

Meta-analysis results

Table 5: Overall effect sizes per outcome (PICO question 3)

	All time points			
	Effect size	P-value	95% confidence intervals	
Positive mental health	0.3549	0.0141*	0.0952	0.6147
Mental disorders (depression and anxiety)	-0.1080	0.2145	-0.2953	0.0792
Self-harm and suicide				
Aggressive, disruptive and oppositional disorders				
Substance use	-0.2682	0.2553	-1.0988	0.5624
Risky sexual and reproductive health behaviours	-0.1661	0.5556	-2.6821	2.3499
School attendance	0.6350	0.0068*	0.5489	0.7210
Adherence to antenatal and postnatal care	0.3118	0.5299	-4.0408	4.6643
Parenting skills	0.0723	0.4703	-0.1599	0.3045
Exposure to intimate partner violence				

*P<0.05. Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, school attendance, adherence to antenatal and postnatal care and parenting skills, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

The review team conducted a sensitivity analysis to assess whether there was any difference in the effects of interventions that used a mental health screening tool to recruit participants into the study, compared to those that did not. This analysis is shown in Table 5a. No significant differences were noted.

Table 5a: Sensitivity analysis for screening in; difference between two groups (PICO question 3)

	All time points			
	Effect size	P-value	95% confidence intervals	
Positive mental health	0.41	0.01**	0.15	0.66
Mental disorders (depression and anxiety)	-0.10	0.25	-0.31	0.10
Self-harm and suicide				
Aggressive, disruptive and oppositional disorders				
Substance use	-0.27	0.26	-1.10	0.56
Risky sexual and reproductive health behaviours	-0.17	0.56	-2.68	2.35
School attendance	0.64	0.01**	0.55	0.72
Adherence to antenatal and postnatal care	0.31	0.53	-4.04	4.66
Parenting skills	0.07	0.47	-0.179	0.33
Exposure to intimate partner violence				

** $P<0.01$. Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, school attendance, adherence to antenatal and postnatal care and parenting skills, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

No other similar existing reviews or guidelines were found for this group. WHO's *Guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries* (34) highlight effective interventions to prevent early pregnancy by influencing factors such as early marriage, coerced sex, unsafe abortion, access to contraceptives and access to maternal health services by adolescents.

Evidence-to-decision framework

Priority of the problem

Adolescents are a growing demographic group globally, and certain regions have high rates of adolescent pregnancy. Overall, 16% of women experience a common mental disorder in the antenatal period, and one in five women experience such conditions in the postpartum period. Mental health is often not addressed in this population group, especially in low-resource settings, even when adolescents are accessing other health care services such as perinatal care.

The mental health of pregnant adolescents and/or adolescent parents will not only have an impact on the adolescents themselves but also on their offspring.

Desirability of effects

The anticipated desirable effects are small. Clinically relevant desirable effects were identified for positive mental health ($ES=0.3549, P=0.0141, 95\% CI [0.0952, 0.6147]$) and school attendance ($ES=0.6350, P=0.0068, 95\% CI [0.5489, 0.7210]$).¹

¹ "Clinically relevant" denotes both statistical significance ($P=<0.5$) and an effect size over the agreed-upon threshold (>0.2).

The anticipated undesirable effects are trivial. No significant undesirable effects were identified. None of the included studies examined potential harms such as additional monetary, psychological or familial burdens associated with participation. Reported rates of attrition between treatment and control conditions suggest limited adverse events and good treatment acceptability.

Certainty of the evidence

The overall certainty of the evidence is low. Four outcomes had very low certainty of evidence (positive mental health, substance use, parenting skills and risky sexual behaviour). Two had low certainty (mental disorders, adherence to antenatal and postnatal care), while one had moderate certainty (school attendance). Outcomes that were not measured include exposure to intimate partner violence, aggressive, disruptive and oppositional behaviour, and self-harm and suicide.

Values

There is no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

Overall, the balance between desirable and undesirable effects probably favours the intervention.

Resources required

Resource requirements (costs) vary across the included interventions. For example, the training given to intervention providers varied from 1 to 500 hours in the studies included in this review. Lay health workers delivered most of the interventions. Many of the interventions involved significant logistical and organizational undertaking through home- and community-based efforts. There is a need for more data on resource requirements.

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements (costs) is very low. There are variations in the qualifications, pay and grades of lay health workers. In addition, inter-organizational initiatives play an important role in launching the interventions. As such, evidence on resources is unreliable and highly context-specific.

Cost-effectiveness

The cost-effectiveness of the intervention probably favours the intervention. However, there is little evidence as to the cost-effectiveness of the interventions. Few studies engaged in cost-effectiveness analyses. It is noteworthy that most studies carried out in the USA evaluated the home visit programmes as quite economical, mainly owing to potential savings for the State. One study had an additional, related publication detailing cost-effectiveness. The study noted that mental health issues were an expensive problem for governments as depression accounted for a significant load of disability-adjusted life years. At US\$ 90 per adolescent over a 15-month period, the intervention costs an additional US\$ 40 compared to standard care (US\$ 50). However, this was in exchange for significantly improved mental health indicators (143). A comparison of the incremental costs with the incremental effectiveness of the home visit programme, using the Goldberg Depression Questionnaire, revealed a cost-effectiveness of US\$ 13.50 per unit in lowering depression symptoms. This means that an investment of US\$ 13.50 (for 15 months) in the home visit programme helps to improve the mental health of adolescent mothers as evidenced by a one-point drop in the score on the Goldberg Depression Questionnaire.

Another intervention, involving book reading, considered feasibility-related outcomes, such as the cost of literacy resources for the programme (books and library cards) and the need for additional staff to carry out the intervention (144). The programme could be implemented at minimal cost and the intervention was adopted permanently once the study ended, thanks to community support. (All books and library resources were donated and student librarians volunteered all librarian time in exchange for course credit).

The evidence from these studies suggests that home visits conducted by paraprofessionals are a cost-effective strategy for supporting pregnant adolescents and young parents. Paraprofessionals were found to be more affordable, more culturally suitable and as effective as nurses (143, 145). In one study, the cost of paraprofessionals was found to be comparable to that of volunteers, meaning that these health workers were the most cost-effective option (146).

Equity

The intervention may have a positive impact on health equity. In fact, adolescent pregnancy and poverty are intimately linked. Pregnant adolescents and adolescent mothers are more likely to experience poverty and to belong to certain minority cultures.

Almost 90% of the studies explored the benefits of promotive and preventive mental health interventions for girls only, as girls are more likely to experience common perinatal disorders during the perinatal period compared to their partners. Only one study included both boys and girls, while one study included adolescent fathers only. Both studies found that engaging with young fathers achieved significant positive effects for the mental health of parents and for their social and economic outcomes (147, 148).

Acceptability

Overall, these interventions are probably acceptable to key stakeholders.

Acceptability to policy-makers: Cultural considerations regarding childbearing, pregnancy and the stigma of mental health need to be examined in discussions on acceptability. Depending on policy-makers' priorities and the sociocultural context, this may be a very acceptable or morally contentious topic.

Acceptability to care providers: Adopting task-shifting and task-sharing approaches involves additional tasks and responsibilities for non-specialist providers who may feel overburdened.

Acceptability to adolescents: It is critical to create culturally relevant intervention materials and understand the ways in which cultures conceptualize issues such as depression and parenting (149–152). Possible solutions include using local paraprofessionals and resources and finding ways to accommodate participants with low literacy skills (150, 152, 153).

Feasibility

The intervention is probably feasible. There are major considerations on dosage, implementation and delivery strategies. Authors of studies conducting home-based interventions noted the challenges they faced, often as a result of high attrition, with a very mobile population and variability in visits. Lay health workers who conduct home- and community-based sessions through community outreach may be better placed to reach young parents and pregnant adolescents than are health providers based in stationary clinics. However, interventions such as those delivered by lay health workers deserve additional attention to strengthen retention and sustainability.

Question 4: Should psychosocial interventions be considered for adolescents living with HIV/AIDS to improve their positive mental health and prevent mental disorders, self-harm and/or other risky behaviours?

Study characteristics

Only three relevant studies were identified: one was conducted in a high-income country (the USA), one in an upper middle-income country (South Africa) and another in a lower middle-income country (Zimbabwe).

The three studies were similar in various ways. All studies made use of randomized controlled trial designs, had similar sample sizes (mean of 77 participants; range 10–22 years old), and had a relatively even split of boys and girls included in the trial (on average 48.5% boys and 51.5% girls). All trials recruited their participants from clinics. However, the studies based in African countries enrolled participants aged 15 years and younger, while the American study enrolled participants aged 14 years and older. The South African study reported on positive mental health and mental health disorders as outcomes, and the American study included these two outcomes as well as adherence to antiretroviral therapy and aggressive, disruptive and oppositional behaviours. The Zimbabwean study considered positive mental health and adherence to antiretroviral therapy. No study measured self-harm and suicide, substance use, risky sexual and reproductive health behaviours, or school attendance.

Intervention implementation

The studies shared further similarities in the ways they were implemented. Two of the studies took place at health centres and used group formats, while one study was delivered to individual participants in their homes. None used any digital media or tailored their interventions to feedback from participants. None of the studies specified session length. Two studies had a similar number of sessions (six for the South African study and nine for the American study), while the third had weekly sessions over the course of a year. One study made use of lay workers, another used both lay workers and mental health professionals, and one used mindfulness instructors. Lastly, one study involved adolescents in developing the final intervention.

Meta-analysis results

Table 6: Overall effect sizes per outcome (PICO question 4)

	All time points		
	Effect size	P-value	95% confidence intervals
Positive mental health	0.6818	0.0956	-0.2968 1.6604
Mental disorders (depression and anxiety)	0.2146	0.7611	-6.7059 7.1350
Self-harm and suicide			
Aggression, disruptive and oppositional disorders			
Substance use			
Risky sexual and reproductive health behaviours			
School attendance			
Adherence to antiretroviral therapy	3.2230	0.4685	-33.8605 40.3065

Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

There are no relevant recent Cochrane reviews on preventive psychosocial interventions to improve the mental health of adolescents living with HIV/AIDS. A 2013 systematic review on the mental health of adolescents living with HIV found few studies describing the prevalence of psychiatric diagnoses in HIV-infected adolescents. However, the studies suggest that psychiatric disorders such as depression and anxiety are more prevalent among perinatally infected adolescents compared to uninfected adolescents (154). A narrative review on mental health challenges among adolescents living with HIV emphasized the need to proactively address mental health issues for all young people infected with HIV, and to integrate such issues into overall HIV care for adolescents (155). Care systems should also pay greater attention to the manner in which mental health support is integrated into the care management for HIV. This should assume a life-course approach, taking into account the changes that occur from childhood to adolescence and into adulthood. The evident lack of studies on and support for the mental health needs of adolescents living with HIV/AIDS exposes a huge gap in research and practice and calls for urgent cost-effective solutions.

Guidelines

For the purposes of this report, no other similar and/or relevant guidelines were found regarding preventive psychosocial interventions targeting adolescents living with HIV/AIDS. Other relevant WHO guidelines are listed below.

Consolidated guideline on sexual and reproductive health and rights of women living with HIV (32).

This guideline focuses on the sexual reproductive health and rights of women living with HIV. It includes several aspects of mental health, such as the impact of an HIV diagnosis on mental health, the high prevalence of mental health difficulties cited by women living with HIV, and concerns about stigma, fear and discrimination.

Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach, second edition (33).

These guidelines provide instructions on the diagnosis of HIV infection, the use of antiretroviral drugs for treating and preventing HIV infection and the care of people (children, adolescents and adults) living with HIV. The guidelines highlight the fact that an HIV-positive diagnosis may have consequences for the mental health of the person living with HIV, such as increasing their risk of depression or suicide. They also emphasize that mental health issues can hamper adherence to antiretroviral therapy, and that antiretroviral drugs may cause side-effects with a bearing on mental health. However, they do not provide recommendations on specific psychosocial interventions to mitigate the risks.

Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations (39).

These guidelines propose a comprehensive package of evidence-based HIV-related recommendations for key populations, including men who have sex with men, people who inject drugs, people in prisons and other closed settings, sex workers and transgender people. The guidelines highlight mental health disorders (depression or psychosocial stress) as a potential comorbidity of HIV that might need prevention or management interventions. However, they do not provide recommendations on specific psychosocial interventions to help mitigate the risks.

Evidence-to-decision framework

Priority of the problem

This problem is a priority as adolescents are a growing demographic group globally. Furthermore, certain regions, such as sub-Saharan Africa, are witnessing an increase in adolescent HIV infections. In spite of the known mental health effects of living with HIV as a young person, few interventions address this challenge or seek to prevent mental health disorders, even as the same adolescents have access to other HIV-related biomedical care.

Desirability of effects

The anticipated desirable effects are unknown. Similarly, the anticipated undesirable effects are unknown, as no significant effects were identified.

Certainty of the evidence

The overall certainty of the evidence is very low. Two outcomes had very low certainty of evidence (positive mental health and mental disorders), and two had low certainty (adherence to antiretroviral therapy, and aggressive, disruptive and oppositional behaviours). Outcomes related to self-harm and suicide, school attendance, substance use and risky sexual and reproductive health behaviours were not measured.

Values

There is no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

It is unknown whether the balance between desirable and undesirable effects favours the intervention or the comparison.

Resources required

Resource requirements (costs) are unknown. Given the sensitivity around the topic of HIV, it is necessary to commit time and resources to training the workforce. There is also a need for more data on resource requirements.

Certainty of the evidence of required resources

No included studies detailed cost-effectiveness. All studies demonstrated that psychosocial interventions targeting young people living with HIV could be delivered effectively in low-income and resource-limited settings. Both studies carried out in sub-Saharan Africa specifically demonstrated the possibility of training lay staff adequately to implement such interventions. Given South Africa and Zimbabwe's resource constraints, using lay staff under the supervision of a mental health specialist improves the chances of scaling up the programme in routine care settings.

Cost-effectiveness

No included studies reported on the cost-effectiveness of the intervention and whether this favours the intervention or the comparison. Included studies show little evidence as to the cost-effectiveness of interventions with this target population.

Equity

These interventions have the potential to increase the impact on health equity. Interventions during adolescence are crucial, because adolescents have very poor outcomes in antiretroviral therapy uptake and adherence. This is true for vertically infected as well as for more recently horizontally infected young people (156). According to one study, interventions that equip adolescents with skills and education that go beyond HIV care can help stem the spread of HIV (157). As adolescents transition in the life-course, they may also modify the way they relate to HIV. Health behaviours during this period can set the stage for future care-seeking, access to care and engagement in care. Adolescents in rural settings, or in settings where HIV is highly stigmatized, may have greater difficulty accessing these types of interventions, but may also need them the most.

This review did not identify any interventions for adolescents living with HIV among key populations (such as young sex workers, injection drug users, young transgender men and women, or young men who have sex with men). Extremely vulnerable to HIV and stigma, these population groups may have additional needs and be exposed to significant health and psychosocial risks. There is a need for research on more vulnerable subsections of this population. Although challenging to implement, such research would help to address the broader population of adolescents living with HIV. Existing evidence found no differences in outcomes between girls and boys. Young women aged 15–24 years are at particularly high risk of HIV infection, and may benefit from gender-specific psychosocial interventions to address multiple interlinked vulnerabilities around sexual and reproductive health and gender norms. Two countries with the highest burdens of HIV, South Africa and Zimbabwe, had interventions in place, which shows that studies are being undertaken in relevant settings. As the evidence base for the effects of HIV on mental health grows and the population in need expands, few real attempts are being made to address this issue. There is an urgent need for more work to test and disseminate psychosocial interventions that support adolescents living with HIV/AIDS.

Acceptability

All key stakeholders accept these interventions. Findings from the study by Willis et al. helped the Ministry of Health and Child Care in Zimbabwe adopt the cognitive analytic therapy service as a model of differentiated service delivery for children, adolescents and young people (158). The Ministry is scaling up this intervention across the country. In South Africa a multidisciplinary team (including nurses, lay workers, researchers and artists) developed the VUKA intervention, which they made culturally appropriate using significant input from adolescents. It is noteworthy that following completion of the pilot study, one of the two hospitals involved retained the VUKA as part of standard care, thanks to the response from participants and the health care provider.

Feasibility

The included interventions are probably feasible. A pilot study indicated high levels of feasibility and acceptability of the VUKA intervention at both hospitals, which recorded high levels of attendance (157). Additionally, peer leaders reportedly managed to reach young people at their point of need in a confidential, safe manner and ensure that they were linked to the services that they needed (64).

Question 5: Should psychosocial interventions be considered for adolescents with emotional problems in order to prevent mental disorders (including progression into diagnosable mental disorders) and to prevent self-harm and/or other risky behaviours?

Study characteristics

In total, 70 relevant studies were identified. The studies covered 19 countries, with the majority ($n=64$, 91.4% of the total sample) conducted in high-income countries. Four trials involved upper middle-income countries (5.7%) while two trials concerned LMICs (2.9%). No randomized controlled trials were conducted in low-income countries. Just over a third of the studies took place in the USA ($n=24$, 34.3%). The second most-represented country was Australia with nine studies (12.9%), followed by the United Kingdom with seven ($n=7$, 10.0%), and the Netherlands with six ($n=6$, 8.6%).

The majority of intervention studies ($n=62$, 88.6%) used a randomized controlled trial design to evaluate the intervention. Five studies (7.1%) used a cluster randomized controlled trial, while three (4.3%) studies used a factorial design.

The sample size of the studies ranged from 18 to 1064 participants, with a mean of 153 and a median of 90 participants. In total, there were 10 706 participants included in the review. Of the 70 studies, 59 reported on the mean age of the participants and the remaining 11 studies reported the age range. Thirty-five studies recruited participants within the 10–14.99 mean age or range group (50.0%), while 31 recruited from the 15–19.99 mean age range (44.3%). Four studies (5.7%) reporting only the age range included adolescents across both age groups.

Sixty-two studies (88.6%) reported on the percentage of boys and girls who took part in the intervention. Of these, the mean percentage of girls included was 68.6%. Six of the studies that reported gender (9.7%) included only girls in the trial and one (1.6%) included only boys.

Most of the intervention studies ($n=68$, 97.1%) measured mental disorders (anxiety and depression) in adolescents. In total, 34 (48.6%) trials measured positive mental health. Some studies also measured: aggressive, disruptive and oppositional behaviours ($n=9$, 12.9%); substance use ($n=8$, 11.4%); self-harm and suicide ($n=6$, 8.6%); and school attendance ($n=1$, 1.4%). None of the included studies measured risky sexual and reproductive health behaviours.

The Center for Epidemiological Studies Depression Scale (CES-D) was the most common screening tool used for emotional problem symptomatology ($n=17$, 24.3%). Nine studies used the Beck Depression Inventory (12.9%), while the others used the Children's Depression Inventory (seven studies), Short Mood and Feelings Questionnaire (six studies) and the Strengths and Difficulties Questionnaire (five studies). In total, 10 (14.3%) studies used self-reporting or teacher/health professional referrals for screening. Additionally, 28 other screening tools for emotional symptoms were used in the studies.

Intervention implementation

The majority of interventions were delivered in schools ($n=38$, 54.3%), with a further eight (11.4%) delivered in a university setting. One intervention (1.4%) was implemented in a community setting, and a further two (2.9%) were carried out through a combination of school and community settings. Community settings included participants' homes, clinics or community centres. Furthermore, seven interventions were carried out exclusively through a digital platform (10.0%), and seven were

conducted face-to-face with the help of a digital component. Six interventions were delivered in a health centre (8.6%). Six studies did not report where the intervention took place (8.6%).

Mental health professionals carried out most of the interventions (n=44, 62.9%). Ten studies were performed solely in a digital manner or in print and therefore did not involve personnel (14.3%). Eight of the trials used a combination of personnel (11.43%), while three used teachers (4.3%) and four did not specify the implementer (5.7%). One intervention used a peer leader, but no interventions used health professionals other than mental health specialists. Over half of the interventions were delivered to groups (n=39, 55.7%), while 24 were delivered to individuals (34.3%). Seven interventions were implemented using a mix of group and individual approaches (10.0%). Overall, 12 studies did not indicate the interventions' total contact time (17.1%). Of those that did report time, contact ranged from 1 to 24 hours, with a mean of 9 hours. Only 4 of the studies (5.7%) explicitly involved adolescents in developing the intervention, while 15 (21.4%) tailored their intervention approach to suit individual adolescents' needs.

Meta-analysis results

Table 7: Overall effect sizes per outcome (PICO question 5)

	All time points			
	Effect size	P-value	95% confidence intervals	
Mental disorders (depression and anxiety)	-0.3058	0.0000*	-0.4220	-0.1897
Self-harm and suicide	0.0078	0.9672	-0.4677	0.4833
Positive mental health	0.1941	0.0003*	0.0965	0.2918
Aggressive, disruptive and oppositional disorders	-0.2016	0.1076	-0.4604	0.0572
Substance use	-0.1054	0.2132	-0.2889	0.0781
Risky sexual and reproductive health behaviours				
School attendance**				

*P<0.05. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

**School attendance was not meta-analysed because only one study measured this outcome.

In addition to the main meta-analysis, sensitivity analyses were conducted to detect potential effects in studies that used different modes to screen participants into the intervention. While all studies in this review question utilized some form of screening, distinctions were made as follows.

- **High** refers to studies that screened and only included adolescents deemed to be high-risk or high-threshold, based on symptomatology.
- **Middle** refers to studies that screened and included adolescents showing moderate symptomatology (in other words, not the most high-scoring adolescents).
- **Mixed** refers to studies that screened and included adolescents with both high and moderate symptomatology.

The results are shown in Table 7a. No significant differences were noted by type of screening method.

Table 7a: Sensitivity analyses by screening type (PICO question 5)

	Screening – high			Screening – mixed (3)			Screening – middle (2)		
	Effect size	P-value	95% confidence intervals	Effect size	P-value	95% confidence intervals	Effect size	P-value	95% confidence intervals
Positive mental health	0.1010	0.3573	-0.1337 0.3358	0.2214	0.0033*	0.0852 0.3576	-0.2613	0.6149	1.4942 0.9717
Mental disorders (depression and anxiety)	-0.2386	0.0119*	-0.4192 -0.0580	-0.3306	0.0007*	-0.5102 -0.1510	-0.0498	0.8657	-0.6594 0.5597
Self-harm and suicide	-0.2659	0.0366*	-0.4975 -0.0343	0.6927	0.4760	-7.4694 8.8549	-0.1572	0.5490	-0.7003 0.3860
Aggression, disruptive and oppositional disorders	-0.2955	0.2022	-1.1939 0.6028	-0.1558	0.3569	-0.5602 0.2486			
Substance use	-0.2104	0.2210	-0.6531 0.2324	-0.0122	0.8526	-0.2184 0.1940	-0.3579	0.3470	-1.2823 0.5665

	Screening – high compared to middle (2)			Screening – high compared to mixed (3)		
	Effect size	P-value	95% confidence intervals	Effect size	P-value	95% confidence intervals
Positive mental health	0.1735	0.2315	-0.1843 0.5373	0.1480	0.1943	-0.0824 0.3784
Mental disorders (depression and anxiety)	-0.2092	0.2489	-0.5999 0.1815	-0.0840	0.5079	-0.3370 0.1690
Self-harm and suicide				0.7162	0.3315	-1.5793 3.0117
Aggression, disruptive and oppositional disorders				0.1818	0.4114	-0.4122 0.7758
Substance use				0.1996	0.2366	-0.1765 0.5757

*P<0.05. Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

Hetrick et al. (99) conducted a Cochrane review on the efficacy of school-based psychological programmes to prevent depression in children and adolescents aged between 5 and 19 years old. They report that interventions delivered to targeted and indicated populations had larger effect sizes than universally delivered interventions. However there were concerns about methodology as well as challenges inherent in the implementation of these types of programmes. The conclusion was that the evidence did not support the implementation of programmes to prevent depression.

Cox et al. (159) reviewed studies on the prevention of relapse or the recurrence of depression in children and adolescents. They found a need for more research in spite of emerging evidence on psychological interventions (Cochrane review) (140).

Ssegona et al. (12) reviewed studies on group-based CBT targeting adolescents aged 12–19 years who had subsyndromal depression. They found that the therapy significantly reduced the incidence and symptoms of depression post-intervention, compared to both active and inactive controls, but that the effect diminished at 12 months.

Guidelines

No relevant guidelines were found on this or related topics.

Evidence-to-decision framework

Priority of the problem

Emotional disorders are increasingly prevalent among adolescents, and may have far-reaching implications on social and occupational functioning, as well as health. Poor mental health in adolescence is a key risk factor for physical and mental health issues later in life.

Globally, depression is the fourth leading cause of illness and disability among adolescents aged 15–19 years and fifteenth for those aged 10–14 years. Anxiety is the ninth leading cause for adolescents aged 15–19 years and sixth for those aged 10–14 years. Early intervention with adolescents already displaying emotional problems is deemed vital for preventing the progression of mental disorders.

Desirability of effects

The anticipated desirable effects are moderate. Clinically relevant desirable effects were identified for mental disorders ($ES=-0.3058, P=0.000, 95\% \text{ CI } [-0.4220, -0.1897]$). Statistically significant but clinically irrelevant desirable effects were found for positive mental health ($ES=0.1941, P=0.0003, 95\% \text{ CI } [0.0965, 0.2918]$).¹

The anticipated undesirable effects are trivial, to the extent that they were measured, given that no significant undesirable effects were identified.

Certainty of the evidence

The overall certainty of the evidence is very low. All six outcomes had very low certainty of evidence (positive mental health, mental disorders, self-harm and suicide, substance use, aggressive, disruptive and oppositional behaviours, and school attendance). Outcomes related to risky sexual and reproductive health behaviours were not measured.

Values

There is no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine whether people valued specific outcomes. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

Overall, the balance between desirable and undesirable effects favours the intervention.

¹ "Clinically relevant" denotes both statistical significance ($P < 0.5$) and an effect size over the agreed-upon threshold (> 0.2).

Resources required

Resource requirements (costs) vary across the included interventions. The majority of the interventions were conducted in a school setting, which may have required taking time and resources away from already overburdened school schedules.

Delivering interventions in a group format and with briefer contact time was found to be cheaper to implement compared to individual, long-term interventions, but was just as effective (160–162).

Using self-help, digital-based tools may reduce resource requirements. Indicated interventions are generally more manageable (49, 50, 79, 163). Certain types of interventions were found to be inexpensive enough for the studies to implement. For example, three trials found bibliotherapeutic interventions or mailing personalized mental health information to participants to be cheap and flexible to use (164–166).

In one study, staff and supervision costs for CBT are estimated at US\$ 645 per group. This translates to US\$ 80 per student, compared to US\$ 8 per student for the cost of the self-help book used in bibliotherapy (166).

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements (costs) is moderate. In school settings, mindfulness interventions have emerged as cost-effective and beneficial in addressing a range of emotional and behavioural problems among students (167). Only one of the included studies detailed cost-effectiveness. It offered no evidence to recommend classroom-based CBT as a cost-effective way of reducing symptoms of depression in school children, compared to routine school life-skills training. Multiple studies found that interventions delivered via the internet, computer programmes or video games showed promising cost-effective evidence (168–170).

Cost-effectiveness

The cost-effectiveness of the intervention probably favours the intervention. As indicated above, digital health interventions and school-based mindfulness interventions have emerged as cost-effective (118–120). The studies often cite cost-effectiveness as an advantage of internet interventions. However, it should be noted that a guided online intervention (as opposed to online self-help interventions) is relatively time-consuming and may not be more time efficient than a group session (162).

Equity

The implementation of interventions can help increase health equity. The included studies indicate that, overall, high demand and lack of services prevent adolescents experiencing emotional problems from receiving adequate support (171, 172). However, as nearly two thirds of the interventions were implemented in a school or university setting, it is also possible that they exclude some particularly vulnerable young people – out-of-school populations, or populations with concurrent challenges such as homelessness.

The population profile in the included studies suggests well resourced individuals and populations, which may introduce an element of bias, either positive or negative.

In addition, many interventions noted that girls were significantly more likely to experience and/or report feelings of depression and anxiety compared to boys (75, 76, 79, 173–175). Over two thirds of the

studies included more girls in their interventions than boys, and boys were more likely to abandon the trial (176). Two studies hypothesized that girls experience depressive symptoms earlier, which helps explain the differences (164, 177).

Acceptability

Overall, the included interventions are probably acceptable to key stakeholders. Psychosocial interventions need to be culturally relevant. Interventions designed to adapt to the needs of the particular population could decrease attrition rates and increase effectiveness (121, 178), especially when considering suitable language translations that can capture the local understanding of mental health issues (173).

Stigma has often been found to constitute a barrier to mental health interventions. However, multiple studies noted that delivering interventions using digital media could mitigate this effect. Interventions that used letters, blogs and mobile phones noted high levels of accessibility and adolescents' confidence to participate in and build relationships, thanks to the anonymity that these media provide (164, 179–181). In addition to digitally implemented interventions, schools and paraprofessionals were also considered particularly useful for delivering interventions because they are often seen as being less intimidating and stigmatizing compared to health services (160, 180, 182).

Feasibility

The feasibility of these interventions varies. Given the time constraints and limited resources available to schools, it is possible that school authorities may resist the inclusion of mental health programming in curricula. However, these studies provide preliminary evidence that prevention programmes that target depressive symptoms may also positively affect the school environment (183–185). There is a need to form partnerships with schools and mental health providers to improve the psychosocial health of adolescents. The use of telecommunication to increase partnerships among health care providers and rural schools is a necessity (186). Digital interventions are shown to suffer high rates of attrition among adolescents.

Question 6: Should psychosocial interventions be considered for adolescents with disruptive/oppositional behaviours in order to prevent conduct disorders, self-harm and/or other risky behaviours?

Study characteristics

In total, 22 studies were found. The studies covered nine countries, with the majority ($n=19$, 86.4%) conducted in high-income countries. Only three studies (13.6%) were conducted in LMICs, in India, Nigeria and Turkey. Of the included studies, eight (36.4%) were conducted in the USA, while three others (13.6%) were conducted in the Netherlands.

Almost all of the included studies ($n=20$, 90.9%) seek to prevent issues related to aggressive, disruptive and oppositional risky behaviours, such as aggression, delinquency, anger and antisocial behaviour. Two studies (9.1%) also intended to prevent substance use. Two studies (9.1%) intended to prevent the development of conduct disorders and oppositional defiant disorders. Fifteen of the included studies (68.2%) aimed to prevent depression and/or anxiety and related issues such as internalizing symptoms, psychosocial distress, withdrawal and emotional symptoms.

The majority of studies used a randomized controlled trial design (n=18, 81.8%). Four studies (18.2%) used a cluster randomized controlled trial design. Sample sizes in the study set ranged from 33 participants to 1244. One study did not report on sample size. Across all studies reporting on sample size (n=21, 95.5%), a total of 4759 participants were recruited. The mean sample size was 227 participants. Of the included studies, 13 (59.1%) reported on the mean age. Participants in the included studies ranged in age between 10 and 18 years. One included study did not report any data on age, but specified adolescence as the basis for inclusion. Only one study targeted girls specifically, while four studies (18.2%) included only male participants. Two studies (9.1%) did not report on gender. Of the studies that reported on gender (n=20, 90.0%), the average percentage of female participants was 32.9%, whereas that of male participants was 67.1%.

The screening methods for recruitment differed across studies. Nine studies (40.9%) used teacher ratings, nominations or descriptions to identify students who met study criteria. Three studies (13.6%) used school records or school nominations. Four (18.2%) studies used referral methods, in which a health care professional, social worker, the court or school system referred adolescents deemed eligible for participation in the study because of their behaviour and/or history of delinquency. Parents' reports and experiences concerning a child's behaviour were also used to screen for eligible participants in two of the included studies (9.1%). Four studies (18.2%) used reports or questionnaires completed by adolescents to determine their eligibility for participation. One included study did not specify the method of screening.

None of the included studies reported on conduct disorder or oppositional defiant disorder diagnoses. Almost all included studies (n=20, 90.9%) reported on aggressive, disruptive and oppositional behaviour outcomes, with a large number of the studies also reporting on outcomes relating to mental disorders (n=15, 68.2%). Two studies (9.1%) reported on outcomes related to positive mental health, while two studies reported on substance use. No studies reported on self-harm and suicide, risky sexual and reproductive health behaviours, or school attendance.

Intervention implementation

Of the 22 included studies, 11 (50.0%) were conducted exclusively in schools. Studies were also conducted in the community (n=3), health centres (n=2) or across multiple settings (n=3). One study was carried out digitally, while two (9.1%) did not specify the implementation site. Mental health professionals implemented the majority of interventions (n=15, 68.2%). Lay health workers implemented two interventions (9.1%) and social workers carried out another two (9.1%). A health professional carried out one intervention. A digital (computer-based) intervention was also included. Of the included studies, one did not specify the intervention implementer. Sixteen included studies (72.7%) did not report on training received by intervention implementers. One of the studies was carried out digitally, and therefore required no implementer.

Training for implementers varied substantially by length and type. One study provided implementers with 6 days of education and/or training and two boosters. Another study provided 2-hour sessions once a week for 6 months. A further two studies provided 56 hours of training, while another study offered 160 hours of training for implementers. Eight studies (36.4%) provided implementers with supportive supervision. Twelve included studies (54.5%) were delivered in a group format, while five studies (22.7%) delivered interventions to individuals. Three studies (13.6%) used group and individual session formats, while one study offered individual or group sessions. Lastly, one study did not specify the delivery format. None of the included studies reported adolescent involvement in developing the intervention.

Meta-analysis results

Table 8: Overall effect sizes per outcome (PICO question 6)

	All time points			
	Effect size	P-value	95% confidence intervals	
Conduct disorder				
Oppositional defiant disorder				
Self-harm and suicide				
Aggressive, disruptive and oppositional behaviours	-0.4812	0.0220*	-0.8855	-0.0769
Substance use	0.2116	0.0056*	0.1881	0.2351
Positive mental health	0.2888	0.0418*	0.0126	0.5649
Mental disorders (depression and anxiety)	-0.4416	0.0084*	-0.7501	-0.1330
Risky sexual and reproductive health behaviours				
School attendance				

* $P<0.05$. Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

In addition to the main meta-analysis, sensitivity analyses were conducted to detect potential effects in studies that used different modes to screen participants into the intervention. All studies in this review question used some form of screening. Nevertheless, for this PICO question the review team made distinctions as follows.

- **High** refers to studies that screened and only included adolescents deemed to be high-risk or high-threshold, based on symptomatology.
- **Middle** refers to studies that screened and included adolescents showing moderate symptomatology (in other words, not the most high-scoring adolescents).
- **Mixed** refers to studies that screened and included adolescents with both high and moderate symptomatology.

Because the middle group was very low in number, the review team combined the middle and mixed categories for analysis. The results are shown in Table 8a. No significant differences were noted by type of screening method.

Table 8a: Sensitivity analysis by screening type (PICO question 6)

	Screening – high			Screening – middle/mixed (combined)			Screening – high compared to middle/mixed		
	Effect size	P-value	95% confidence intervals	Effect size	P-value	95% confidence intervals	Effect size	P-value	95% confidence intervals
Positive mental health	0.284	0.0933	-0.0587 0.6267	0.2574	0.3772	-0.5501 1.0648	0.0073	0.9815	-0.7434 0.758
Mental disorders (depression and anxiety)	-0.3431	0.0172*	-0.6044 -0.08818	-0.6272	0.1163	-1.4771 0.2228	-0.289	0.4121	-1.0354 0.4574
Aggression, disruptive and oppositional disorders	0.3304	0.0147*	-0.5801 -0.0806	-0.9313	0.1775	-2.4012 0.5385	-0.5107	0.3865	-1.7326 0.7112

* $P<0.05$. Models in italics are indicative only, given the statistical estimation procedures used. For positive mental health, a positive effect size denotes a beneficial effect. For all other outcomes, a negative effect size denotes a beneficial effect.

Additional evidence

Existing reviews

Mytton et al. (187) conducted a Cochrane review on the impact of school-based violence prevention programmes for children and adolescents aged 4 to 16 years who were identified as aggressive or at risk of being aggressive. They report that aggressive behaviour was significantly reduced following the intervention compared to controls ($SMD=-0.41$, 95% CI [-0.56 to -0.26]), and remained that way at 12-month follow-ups ($SMD=0.40$, 95% CI [-0.73 to -0.06]). They performed subgroup analyses, which showed that in comparison, interventions to teach non-response to provocative situations were less effective for secondary school populations or boys-only groups. Nevertheless, both interventions had similar effects for primary school populations or mixed gender groups.

Furlong et al. (188) conducted a Cochrane review on behavioural and cognitive-behavioural group-based parenting programmes for early-onset conduct problems in children aged 3 to 12 years. The authors concluded that behavioural and conduct-based group parenting interventions are effective and cost-effective for improving conduct problems in children.

Guidelines

The National Institute for Health and Care Excellence, United Kingdom, has a similar guideline titled *Antisocial behaviour and conduct disorders in children and young people: recognition, intervention and management* (13). This guideline provides recommendations on how to identify and manage antisocial behaviour and conduct disorder in children and adolescents under 19 years of age.

It includes recommendations for interventions targeting high-risk individuals with existing symptoms but who do not meet the diagnostic criteria for conduct disorders, as well as for children and young people diagnosed with oppositional defiant disorder or conduct disorder. Recommendations were made in three areas, as listed below.

- There is a need for manualized training programmes for parents of children aged under 11 years, which should include: working with groups or individuals, using a social learning model, and 10–16 meetings lasting 90–120 minutes.
- There is a need for manualized child-focused programmes, which should include: group social and cognitive problem-solving programmes for children and adolescents aged 9–14 years, adapted to their developmental level, based on a cognitive-behavioural problem-solving model, and using modelling, rehearsal and feedback to improve skills, and 10–18 weekly meetings lasting 2 hours.
- There is a need for manualized multimodal interventions for adolescents aged 11–17 years and their parents, with a clear and supportive family focus, which should include: using a social learning model as a basis, provision at individual, family, school, criminal-justice and community levels, and 3–4 weekly meetings over a period of 3–5 months.

Evidence-to-decision framework

Priority of the problem

Externalizing behaviours in adolescents are viewed as a public health concern because they can lead to problems among peers and in school and family functioning. Externalizing problems can persist into adulthood. Behavioural disorders are the second leading cause of disease burden in young adolescents aged 10–14 years and the eleventh leading cause among older adolescents aged 15–19 years.

Desirability of effects

The anticipated desirable effects are moderate. Clinically relevant desirable effects were identified for aggressive, disruptive and oppositional behaviours ($ES=-0.4812, P=0.0220, 95\% CI [-0.8855, -0.0769]$), mental disorders ($ES=-0.4416, P=0.0084, 95\% CI [-0.7501, -0.1330]$) and positive mental health ($ES=0.2888, P=0.0418, 95\% CI [0.0126, 0.5649]$).

The anticipated undesirable effects are moderate. Clinically relevant undesirable effects were identified for substance use ($ES=0.2116, P=0.0056, 95\% CI [0.1881, 0.2351]$).¹

Certainty of the evidence

The overall certainty of the evidence is very low. Three outcomes had very low certainty of evidence (positive mental health, mental disorders and aggressive, disruptive and oppositional behaviours), and one outcome was low (substance use). Outcomes related to risky sexual and reproductive health behaviours, school attendance and self-harm and suicide were not measured.

Values

There is probably no major uncertainty about or variability in how much people value the main outcomes. Overall, the beneficiaries of these interventions value the main outcomes measured. The review team did not examine the specificity of the outcomes that people valued. However, improved mental health is a key part of the SDGs (target 3.4), and reducing the suicide mortality rate is a key measure for indicator 3.4.2.

Balance of effects

Overall, the balance between desirable and undesirable effects varies and favours the intervention or the comparison. The balance of effects favours the intervention for aggression and oppositional behaviours, as well as for positive mental health and mental disorders (depression and anxiety). However the effects favour the comparison for substance use.

Resources required

Resource requirements (costs) vary across the included interventions. These studies took place in a variety of settings beyond schools, such as health centres, homes and social service facilities. The majority relied on mental health professionals. Half of the studies were conducted in a group format, with the remaining being delivered to individuals or as a combination of the two formats. This indicates a lack of best practice for this population. Only one study used a digital medium while the others used face-to-face interventions, which increases costs.

Certainty of the evidence on required resources

The certainty of the evidence on resource requirements (costs) is moderate.

Cost-effectiveness

The cost-effectiveness of the intervention varies and can favour the intervention or the comparison group. The included studies reported various observations on cost-effectiveness, specifically with respect to the type and structure of the interventions. Firstly, CBT was shown to be cost-effective (189). Interventions

¹ "Clinically relevant" denotes both statistical significance ($P=<0.5$) and an effect size over the agreed-upon threshold (>0.2).

that use parent training are also found to be cost-effective (190). Using a website to present much of the intervention content considerably streamlines delivery, and may increase an intervention's cost-effectiveness (191). Group interventions that use a standardized format may be more cost-beneficial (192).

Equity

The included interventions could help enhance the impact on health equity. Many of the included interventions relied on: networks of care providers to deliver integrated approaches, such as multisystemic therapy (193); mental health professionals working within school and/or community settings (194); or, concurrent parent involvement (195). This type of structure may have helped strengthen support to ensure the success of interventions among young people with disruptive/oppositional symptomatology. However, it may also prevent settings with less stable networks (such as those that involve separated family members or young people who are out of school) from successfully implementing these kinds of interventions and benefiting from them. Furthermore, the mode of screening may influence access to interventions for the hardest-to-reach adolescents.

As noted above, five of the included studies specifically targeted male participants who displayed elevated rates of aggression (196). Interestingly, the types of aggressive behaviours that girls engage in differ from the types boys engage in. In one study, boys demonstrated more externalizing behaviour while girls showed more verbal and relational aggression (197). Two studies specifically report greater effects (that were more positive) for boy than for girls (190, 193). However, another study reported that gender did not significantly influence programme outcomes (198). One study reported that while gender did not affect the behaviour of the children themselves, the intervention affected the behaviour of the parents of girls and boys differently (199).

Acceptability

The included interventions are probably acceptable to all key stakeholders. Older adolescents (14 years and above) are likely to benefit more from structured CBT in mixed-gender groups, whereas younger adolescents may benefit more from a single-sex group (192). As aggressive boys have shown to be resistant to treatment, introducing an element of bibliotherapy to the intervention may mitigate their defensiveness (200).

Feasibility

The feasibility of the included interventions varies across the board. The majority of studies were conducted in high-income countries and involved significant resources across multiple levels (school, social worker, home/community buy-in and time-intensive interventions). This level of resource coordination and financial buy-in may pose challenges for implementation in low-resource settings. Dosage may also be an issue, as some studies required significant contact time with participants, which may affect feasibility. There is a need for more research on possible iatrogenic effects of group-based interventions in this population (201).

Annex 7: Research gaps and priorities

- Evidence from LMIC settings is under-represented in the evidence base. There is a crucial need for further research and programme evaluation to improve knowledge on effectiveness, costs and the implementation of interventions in specific contexts, including low-resource or high-adversity settings.
- Evidence exists on the effectiveness of promotive and preventive mental health interventions for adolescents. Nevertheless, many of the studies had major limitations in terms of methodology, which further demonstrates the need for more high-quality research in this area.
- It is necessary to carry out further research on implementation in order to create optimal and feasible training models for implementers who deliver promotive and preventive interventions for adolescents.
- There is a need for additional research on effects, including additive effects, of structural intervention components. This will, for example, help address structural social determinants of mental health in adolescence.
- There is a need for further research on promotive and preventive mental health interventions whose outcomes are long-term or unrelated to mental health. Long-term outcomes, for example, concern education and employment, while outcomes that are unrelated to mental health may concern sexual and reproductive health, substance use and school attendance.
- There is a need for additional research on the impact of involving parents, caregivers and families in psychosocial interventions and on the best strategies for doing so.
- Many studies routinely exclude suicidal adolescents. Given the high level of mortality associated with suicide in adolescence, future research should include suicidal adolescents (with appropriate ethical oversight), evaluate suicide prevention interventions and assess suicide outcomes. Trials routinely exclude suicidal adolescents. Therefore, this area requires further research.
- It is important to improve reporting mechanisms for data collection and mechanisms of change. It is also vital to improve the types of interventions, as well as their implementation and scale-up in diverse settings.
- There is a need for additional documentation on the resources required to implement interventions, especially in low-resource settings.
- It is crucial to carefully consider the ethical implications of researching promotive and preventive interventions for adolescents. This should also cover the voluntary nature of participation, the anonymity of data and the management of potential unintended harms.
- There is an urgent need to research the equity impacts of universally delivered mental health promotion interventions (taking into account gender, LGBTI adolescents, indigenous populations, adolescents exposed to violence and to poverty, and other vulnerable groups). High-quality research is urgently required to evaluate the effect of psychosocial interventions to promote mental health and prevent mental disorders, self-harm and risky behaviours among adolescents exposed to violence.
- It is vital to conduct further research on the impact of social media on the mental health of adolescents in LMICs, and social media interventions to promote mental health and prevent mental disorders.

- Researchers should look into the aspects of the community and other settings that may expose adolescents to violence, and provide detailed information on the characteristics and demographics of this target population. This will enable readers to assess the degree to which adolescents who receive psychosocial interventions risk exposure to violence.
- High-quality research is urgently needed to evaluate the effects of psychosocial interventions to promote mental health and prevent mental disorders, self-harm and risky behaviours among adolescents exposed to poverty.
- Researchers should look into the aspects of communities and other settings that may expose adolescents to poverty, and provide detailed information on the characteristics and demographics of this target population. This will enable readers to assess the degree to which adolescents who receive psychosocial interventions risk exposure to poverty.
- Individual psychosocial interventions may not be adequate without structural interventions. Accordingly, researchers should conduct studies on the implementation and effectiveness of psychosocial interventions. The aim is to supplement structural interventions to tackle underlying poverty.
- It is particularly important to carefully consider the ethics of research in humanitarian contexts (in conformity with the Inter-Agency Standing Committee's recommendations for conducting ethical mental health and psychosocial research in emergency settings, 2015).
- More research is required on the impact of psychosocial interventions that aim to: reduce mental disorders (depression and anxiety), substance use, self-harm and suicide; reduce exposure to intimate partner violence, aggression and risky sexual and reproductive health behaviours; improve parenting skills; and, encourage adherence to antenatal and postnatal care in pregnant adolescents and adolescent parents, particularly in LMICs.
- It is necessary to produce more evidence of the effects of psychosocial interventions on the mental health and psychosocial needs of adolescent fathers.
- There is an urgent need to research the impact of psychosocial interventions on equity among adolescents living with HIV.
- Researchers should include antiretroviral adherence, HIV viral suppression, school attendance, risky sexual and reproductive health behaviours and related health conditions in study outcomes.
- There is a need to include mental health outcomes in other areas of research on adolescents living with HIV, in order, for example, to evaluate the mental health impact of HIV-related interventions.
- It is important to conduct further research on the ways in which depression, anxiety and self-harm are linked to suicidal behaviours in LMICs.
- Researchers should carry out more studies on interventions targeting adolescents with disruptive or oppositional behaviours in LMICs. This should include research into potential adverse effects of substance use outcomes, and exploring alternative models for the delivery of interventions (including task-shifting approaches).
- More research is required on the impact of psychosocial interventions that aim to reduce self-harm and suicide among adolescents with disruptive/oppositional behaviours.
- There is a need for further research on the optimal age(s) for intervention with adolescents who exhibit disruptive or oppositional behaviours.
- All studies should monitor substance use when conducting interventions with adolescents who have disruptive or oppositional behaviours.

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