

Appendix 2. Selection criteria

RQ 1: "In children and adolescents aged 5 to 18 years (P), what risk or protective factors related to how they interact/communicate with their peers (I) are associated with their mental health (O)?"

Publication language: English

Publication type: Include: articles published in a peer-reviewed journal.

Exclude: conference abstracts, conference papers, (clinical) trial registrations, dissertations, letters to the editor.

Study design: Include: A systematic review: inclusion of a systematic review as a source of studies if the search strategy and selection criteria are clearly described and at least three databases have been searched; inclusion of a systematic review as whole: if the search strategy and selection criteria are clearly described and at least three databases have been searched, if meta-analyses are provided and if the systematic review is not more than 5 years old; when including a systematic review as whole the majority of the studies should be conducted in one of the countries listed below (see Population) and included studies can also contain cross-sectional studies.

An observational study: inclusion in case of one of the following study types: controlled before and after studies, controlled interrupted time series, cohort studies/case-control studies/cross-sectional studies in which measures are controlled for confounding factors or co-variables (other factors) (e.g. matching, multivariate regression analyses)

Exclude: experimental studies, uncontrolled observational studies, cross-sectional studies which did not control for confounding factors, case series, qualitative studies, animal studies, *ex vivo* or *in vitro* studies, studies reporting no quantitative data. Studies with less than 3 participants per group.

Population:

Include:

- Children between 5 and 18 years of age (primary and secondary school age; US: high school) (all children in the study should be within this age range); if only the mean age is available, it should be within this range (also check SD); if the age is not reported, studies in primary school/secondary school/high school are included; studies with different waves at different ages are included if the outcome was measured within the age range of interest
- Studies from the following countries: Albania, Andorra, Australia, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Cyprus, Denmark, Germany, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Kosovo, Croatia, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldavia, Monaco, Montenegro, The Netherlands, New-Zealand, Noord-Macedonia, Norway, Ukraine, Austria, Poland, Portugal, Romania, Russia, San Marino, Serbia, Slovenia, Slovakia, Spain, Czech Republic, Turkey, Vatican City, United Kingdom, United States, Belarus, Sweden, Switzerland
- Studies with vulnerable children, children with a low socioeconomic status, non-native children, being physically disabled (also including deafness), children who experienced a divorce of their parents, LGBTQ children (including gender dysphoria), refugees, children in foster care, children in youth institutions, children who experienced a critical incident (losing a family member, abuse, life

threatening injury, major security incident (e.g. a fire, bomb threat, hostage situation, significant destruction of property or theft of a car))

- Studies with children with the following physical diseases: cancer, obesity, heart disease
- Studies with children with one of the following mental health problems (in which another mental health outcome is measured, or a decrease or increase of the problem is measured): addiction, aggression, depression, anxiety, eating problems, self-harm, sleeping problems, and suicidal ideation

Exclude:

- Studies with college students (these could also include 18 year-olds, but their peers could be older); studies with preschool children; studies which also included children younger than 5 or older than 18 years old
- Studies with children with other physical problems or diseases than the ones mentioned above (e.g. pregnancy, epilepsy, diabetes, ...)
- Studies with children with autism, ADHD, borderline personality disorder, learning disabilities/disorders (dyslexia, dyscalculia, language disorders,...), mental retardation, other mental disorders/problems not mentioned above (psychosis, bipolar disorder, schizophrenia, obsessive compulsive disorder, post-traumatic stress disorder, paranoia,...)
- Studies that took place during a pandemic, natural disasters

Intervention:

Include:

- Risk factors/protective factors/predictive factors related to how children and adolescents communicate/interact with children/adolescents of the same age group (friends, siblings, peers; age is not always mentioned). These factors could include:
 - recognizing signs indicating that peers are not feeling well
 - supportive (or unsupportive) actions (e.g. comforting, talking, emotional support, criticizing the person) aimed at peers
 - coping strategies of the person itself (e.g. talking to a confidant, coping mechanisms consisting of interaction with peers, co-rumination)
 - actions in the context of help seeking
 - There should be a direct link to this factor and the outcome (the study is excluded if only an indirect link through a mediating factor is presented)

Exclude:

- Communication related to the disclosure of a diagnosis
- Communication as a risk/protective factor for developing mental distress in later life (no prevention at the long term: both factor and outcome should be within the age range)
- Mass media campaigns

- Support groups with professional help providers
- Storytelling, dream telling
- Treatments/factors that are not fit for a lay setting (i.e. psychotherapy or other communicative interventions requiring extended training and/or professional expertise).
- Peer norms
- Peer delinquency
- Team sport participation
- Discrimination
- Being part of a specific youth subculture (e.g. emo/goth)
- Deviant peers/delinquent peers/gang membership/having friends who drink/having friends who are aggressive/having friends who self-harm
- popularity, friendlessness, being neglected (not having friends), social network size, number of friends (focus of these factors is on quantity rather than quality)
- Peer selection
- Social withdrawal
- Viewing of suicide-related web content

Control: Not experiencing the exposure or risk factor of interest

Outcome:

Include:

- Any mental health outcome or psychological wellbeing. Mental health problems can present within a broad range of severity. Hence, we not only focused on mental health outcomes reflecting psychiatric symptoms and/or caseness, but also included studies assessing mental health symptomatology reflecting common emotional and social undesirable changes in thinking, feeling and/or behaviour. Relevant outcomes include: mental health in general, well-being, body image, self-esteem, depression, anxiety, aggression, anger, conflict, being bullied, addiction, suicide, eating problems, sleeping problems
- Eating problems: bulimia, anorexia, binge-eating, purging, taking diet pills, taking laxatives, unhealthy weight reduction practices, studies looking at both disordered eating thoughts + behaviours (single outcome measure)
- Anxiety: anxiety, social anxiety, attachment anxiety
- Suicide: suicide, suicide attempt, suicidal ideation, suicidal thoughts
- Self-harm: Intentional/Deliberate self-harm (ISH/DSH), non-suicidal self-injury (NSSI), cutting/burning oneself, self-mutilation
- Addiction: Included: addiction to/problematic behaviour with drinking, drugs or other substances, gambling or gaming (as described by the authors). Sleeping problems: sleep quality, insomnia, sleeping problems (in general)
- Aggression/anger/conflict/bullying/abuse: physical abuse, emotional abuse, composite outcomes (e.g. antisocial behaviour if majority of elements are of interest), conduct problems

- Mental health in general: stress, distress, mental health, well-being, self-esteem, identify development, self-efficacy, quality of life, life satisfaction, school connectedness, school satisfaction, psychological adjustment, psychosocial adjustment, antisocial attitude/behaviour, prosocial behaviour, social withdrawal, emotional dysregulation, externalizing problems/behaviour, risk-taking behaviour, delinquent behaviour, internalizing behaviour, belonging, resilience, body image, social isolation, frustration, pressure, loneliness, all other mental health outcomes mentioned above, composite measure of somatic and psychological complaints (e.g. headache, stomach ache AND sleeping problems, irritability, nervousness), (brooding) rumination

Exclude:

- Eating problems: obesity, studies only looking at thoughts (body dissatisfaction, weight concern, weight loss preoccupation); dieting (not necessarily unhealthy weight control behaviour)
- Suicide: non-suicidal self-injury (covered by self-harm)
- Self-harm: Thoughts about self-harm
- Addiction: smoking (use of tobacco); experimenting with alcohol and occasionally drinking alcohol; regular use of alcohol (as defined by the authors); substance (ab)use involving smoking of tobacco as item along with alcohol, drugs, ...; risk-taking behaviour as outcome in which substance use is one of the measured components along with e.g. delinquency, early sexual intercourse, drinking drivers, ... ; driving under the influence of alcohol or drugs
- Aggression: animal abuse, substance abuse, marijuana, excessive drinking, being bullied, being abused, gang membership, outcomes for which the precise definition is not clear, composite outcomes if majority of the elements are irrelevant

General mental health: school achievement, school engagement, (subjective) somatic complaints, e.g. headache, stomach ache, school dropout

RQ2: "What is the effect of educational programs aimed at dealing with mental health (problems), social skills, recognizing signs of mental health problems or referring to professional help (I), on the mental health or mental health knowledge/skills/attitudes and/or behaviour (O) in children and adolescents between 5 and 18 years old (P)?"

Publication language: English

Publication type: Include: articles published in a peer-reviewed journal; for study protocols we searched if the full study is available; for conference abstracts and dissertations we searched if the study had been published; Exclude: conference abstracts and dissertations that were not published as a separate peer-reviewed publication, (clinical) trial registrations, letters to the editor.

Study design: Include: systematic reviews with a search date not more than 5 years old, which could be used as a whole (either all analyses, or a subgroup analysis) or as a source of studies (but only if study characteristics and study findings of the individual studies are available in the review); 3 databases should at least have been searched; search strategy should be reported; selection criteria should be present; a quality assessment of the included studies should be present; quantitative data should be present; included studies should be controlled experimental or observational studies (but not cross-sectional). Exclude: systematic reviews which are covered by another systematic review which

a more recent search date or of higher quality (e.g. including higher quality study types); systematic reviews for which it is not clear which included studies are behind specific data or results; systematic reviews in which the content of the included programs/interventions is not clearly described; systematic reviews without quantitative data; review of reviews

Population: Include: children between 5 and 19 years in the school context, recreational setting, residential setting. If the systematic review also contains studies outside this age range, a subgroup analysis of the eligible age range should be available. Exclude: systematic reviews that only included studies with specific target groups (specific vulnerabilities or (mental) health problems)

Intervention: Include: universal (i.e. not aimed at a group with an increased risk)

training or educational programs, existing of face-to-face or web-based lessons, mobile applications, games, group activities, ... ; prevention programs aimed at general mental health, or one of the outcomes listed below (e.g. bullying). Programs had to be targeted to children but could also involve parents. If the systematic review also contains studies with other interventions/programs, a subgroup analysis of the eligible interventions/programs should be available or study characteristics and study findings of eligible studies should be available. Providers of the interventions are teachers, parents, peers,... with no or only minimal training. Exclude: professional interventions or providers, prevention programs aimed at other outcomes than the ones listed below (e.g. smoke prevention, preventing alcohol abuse, suicide prevention, prevention of depression etc); sexual health education; other interventions which do not have an educational purpose (e.g. mindfulness, yoga classes, cognitive behavioral therapy and other training programs teaching eg stress reduction techniques...); promotional material, flyers, information leaflets, awareness campaigns, media campaigns,... if they do not contain an educational component; multidisciplinary interventions that do not have the educational component as main component; interventions of which the content is not clear; selective programs, targeted to youth who are at risk and in need of additional support (i.e. "non-universal")

Comparison: Include: no intervention, waiting list, educational program with content unrelated to mental health, classes as usual, routine health curriculum, universal program, treatment-as-usual bullying prevention programs, physical first aid training, educational program on mental health alone, anxiety-management school protocol, Second Step program in multiple grades, social skills training program without a specific training component (psychoeducation or psychophysical components or skill-building components), social skills training program without a specific booster component (class management or rewarding or goal setting or generalization or coaching or (self-)monitoring), programs not focusing on a specific content component (emotion regulation or assertiveness or self-efficacy or self-control or insight building or cognitive coping or relaxation or social skills or problem solving or peer resistance), programs without a specific instructional component (practice or modelling or discussion or goal setting or (self-)monitoring or multimedia or homework or didactic instruction).

Outcome: Include: knowledge about mental health, mental health literacy, well-being, happiness, general mental health, (dis)stress, self-esteem, body image, social skills, self-efficacy, resilience, coping mechanisms, social behavior, help seeking behavior, stigma about mental health (problems), satisfaction with social relations, quality of life, dealing with bullying/conflicts, sense of belonging, psychological adjustment, emotional awareness, prosocial behavior, offering help, empowerment, positive school climate, problem solving skills, bullying perpetration/violence/aggression/bullying victimization. Exclude: specific mental health problems (e.g. depression, anxiety, suicidal ideation,...)