

Systematic scoping review of school-based psychological first aid programs

Johanna Fugmann^a, Martin Schecklmann^a, Josef Eisl^a, Peter M. Kreuzer^a,
Stephanie Kandsperger^b, Romuald Brunner^b, Berthold Langguth^{a,*}

^a Department of Psychiatry and Psychotherapy, University Regensburg, Bezirksklinikum, Regensburg, Germany

^b Department of Child and Adolescent Psychiatry and Psychotherapy, University Regensburg, Bezirksklinikum, Regensburg, Germany

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ABSTRACT

Introduction: With a prevalence of around 20%, mental illness in young people has become a major global health issue. A growing number of school-based psychological first aid programs have lately been developed to empower teachers and students to provide acute support to peers with mental health problems. This systematic scoping review aims to provide an overview of the different psychological first aid programs available in the school context.

Methods: A systematic search for school-based psychological first aid programs was conducted in various databases using a predefined set of search terms and keywords.

Results: Direct comparison of the different interventions is hampered by the wide variety of assessment instruments used and the lack of randomized controlled trials. Long-term follow-up data, costs, group sizes and the use of interactive elements are rarely reported. Changes in the domain “Knowledge and Attitudes” have been most frequently investigated, whereas the domain “Behaviour and Actions”, has been analysed to a much lesser extent. Most programs consisted of face-to-face interventions, whereas online-based interventions, blended learning or gamification were rarely used. Some common conditions such as stress and anxiety disorders, eating disorders and ADHD, were not specifically addressed by the programs reviewed.

Conclusion: Several school-based psychological first aid programs are currently available. The promising results justify implementation in everyday school life. Options for further development include incorporating blended learning elements, gamification, and involving people with a personal history of mental illness.

1. Introduction

It is estimated that an increasing number of adolescents are affected by mental health problems (Castelpietra et al., 2022), which has given rise to growing concern worldwide. With an estimated prevalence of around 5% among adolescents anxiety and depression represent the most prevalent psychological disorders (Castelpietra et al., 2022). Furthermore eating disorders, self-harm and attention deficit hyperactivity disorder (ADHD) represent significant concerns (Castelpietra et al., 2022). Suicide is estimated to be the second leading cause of death among young people between the ages of 10 and 24 (Glenn et al., 2019) and depression is widely recognized as the most significant single risk factor for attempted or completed suicide (Beautrais et al., 1996). Despite the already high prevalence of mental health problems in young people, there is evidence that the incidence of mental illness is still

increasing in many countries (Castelpietra et al., 2022; Seven et al., 2021). At the same time, mental health disorders in adolescents remain frequently unrecognised and untreated (WHO, 2021).

Several reasons may account for the marked increase in the incidence of mental disorders during adolescence (Kessler et al., 2007). Firstly, adolescence represents a particularly challenging period in an individual's life course, which is characterised by significant developmental changes (Thorsen & Pearce-Morris, 2016; Volkow et al., 2017). Secondly, the capacity to regulate emotions, including the ability to cope with negative emotions, is not yet fully developed in adolescents (Steinberg et al., 2008) rendering them particularly vulnerable to the physiological and psychological impact of external factors (Bowman et al., 2020; Kelly et al., 2011; Simmons et al., 2011; Thorsen & Pearce-Morris, 2016). In addition, traumatic events experienced by adolescents, such as parental divorce, changing schools, peer bullying, and

* Corresponding author at: Department of Psychiatry and Psychotherapy, University Regensburg, Bezirksklinikum, Universitätsstr. 84, 93053, Regensburg, Germany.

E-mail address: berthold.langguth@medbo.de (B. Langguth).

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academic failure, make adolescence a critical period for the onset of mental health disorders (Beesdo et al., 2009; Field et al., 2017). Furthermore, the majority of mental illnesses manifest at an early age (Aluh et al., 2018; Ogorchukwu et al., 2016). Global crises such as warfare or the SARS-CoV-2 pandemic may further exacerbate mental health problems in the particularly vulnerable age group of adolescents (Carvajal et al., 2021; Clemens et al., 2020; Deng et al., 2023).

It is well documented that mental health disorders in adolescents have a significant and far-reaching negative impact on numerous aspects of an individual's life, including poor academic performance, (Escobar et al., 2020; McGillivray et al., 2021), reduced lifetime income, negative influence on interpersonal relationships (Escobar et al., 2020; Kutcher et al., 2015) and an elevated risk for developing mental illness in adulthood. Preventive measures for improving mental health among adolescents are therefore an urgent issue in public health (Bjørnsen et al., 2019; Campos et al., 2018; McGorry et al., 2024).

Given that adolescents spend a significant portion of their time at school, educational settings are increasingly recognized as crucial not only for academics but also for social and emotional growth in youth (Fortier et al., 2017). The school environment provides a unique opportunity to reach a large number of students at relatively low costs. This is particularly the case when interventions are integrated into the regular school curriculum, as this approach can circumvent many of the logistical challenges associated with community-based care, such as transportation time, costs and access barriers (Costa et al., 2022; Lindow et al., 2020; Sánchez et al., 2020). A systematic review of suicide prevention interventions among young people found that interventions delivered in school, community, and healthcare settings were all associated with reductions in suicidal ideation and suicide attempts, with school-based interventions demonstrating particularly promising effects in this population. (Calear et al., 2015). Consequently, the World Health Organisation (WHO) recommends schools as the optimal setting for mental health interventions targeting adolescents (Ueda et al., 2021).

In recent years psychological first aid programs (see Box 1) received increasing attention as a promising approach to improve mental health among adolescents and have been the subject of extensive research (Hadlaczky et al., 2014; Morgan et al., 2018; Ng et al., 2021; Wang et al., 2021).

The present study aims to provide a systematic scoping review of the growing number of school-based psychological first aid programs offered worldwide. Given the considerable heterogeneity in the organisation, aims and evaluation of psychological first aid seminars offered in a school context, the objective of this systematic literature review is to provide an overview of the existing programs, including their organisation, target group and thematic focus, as well as their evaluation methods, efficacy and effectiveness. The review will also highlight gaps in reporting and research, and discuss implications for future interventions and studies.

2. Methods

The present review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)

checklist for systematic reviews and is registered with the International Prospective Register of Systematic Reviews (PROSPERO).

In September 2023, a literature search was carried out using the keywords “mental health first aid”, “psychological first aid” or “MHFA”, combined with “course”, “seminar”, “intervention”, “workshop”, “tutorial”, “training” or “education” in the following databases: PubMed, PsycINFO (APA), EMBASE (OVID interface) and Cochrane Central Register of Controlled Trials (CENTRAL). Additionally, relevant articles were identified through citation tracking. The MHFA International website's list of course evaluations was reviewed to address any potential gaps in the previous search. All articles published between 01/01/2000 and 22/09/2023 in either English or German were included for further evaluation.

The research corpus was uploaded to the digital data management platform Citavi (www.citavi.com). The search results were narrowed down manually to achieve maximum accuracy, with duplicates being removed both by Citavi and manual review. To adhere to best practice guidelines, all searches were cross-checked by two independent reviewers against pre-determined inclusion and exclusion criteria. Additional relevant publications which were not found by the previous search strategy were included when there was agreement of both reviewers.

Only scientific original articles were considered, whereas reviews and study protocols, along with conference abstracts, commentaries, letters, and grey literature were excluded. Only programs for adolescents (10–19 years, based on the WHO definition of adolescents (WHO, 2021)) within a school setting were included. Concerning course content this systematic scoping review did exclude psychological interventions in the area of emergency psychology or drug abuse prevention as well as interventions focusing exclusively on mental health literacy, awareness, mindfulness or stigma reduction. For an in-depth delineation of the sorting process, refer to the PRISMA flowchart displayed (Fig. 1).

Articles were categorised by intervention programs and data were extracted systematically by one reviewer and verified by an independent second reviewer in accordance with best practice guideline.

Specific aspects of the intervention were assessed as follows:

- 1) Delivery format: It is noted if the program is delivered face-to-face (i.e., in a classroom), digitally (i.e., via an online lecture, an app, or a website-based intervention), or with a blended approach involving face-to-face and digital elements. Digital components were differentiated between synchronous (allowing all participants to take part in the intervention simultaneously, like live online lectures) and asynchronous delivery (allowing participants to choose when to engage in the intervention within a specific time frame, such as pre-recorded lecture videos available online).
- 2) Duration and Time Allocation: The duration of the intervention (in hours) and the average session length (in hours) were recorded, along with whether the intervention was completed in a single day or over several days. If the latter was the case, it was distinguished whether the days were consecutive, such as a 3-day intervention occurring from Monday to Wednesday, or not, such

Box 1 First aid programs.

First aid programs aim to improve mental health by teaching the lay public to correctly assess acute situations in their environment and interact with those affected until the crisis is resolved or appropriate professional help is received. To achieve this objective, participants are educated on how to approach and provide support by learning to detect psychological emergencies and the practical steps to take in such situations.

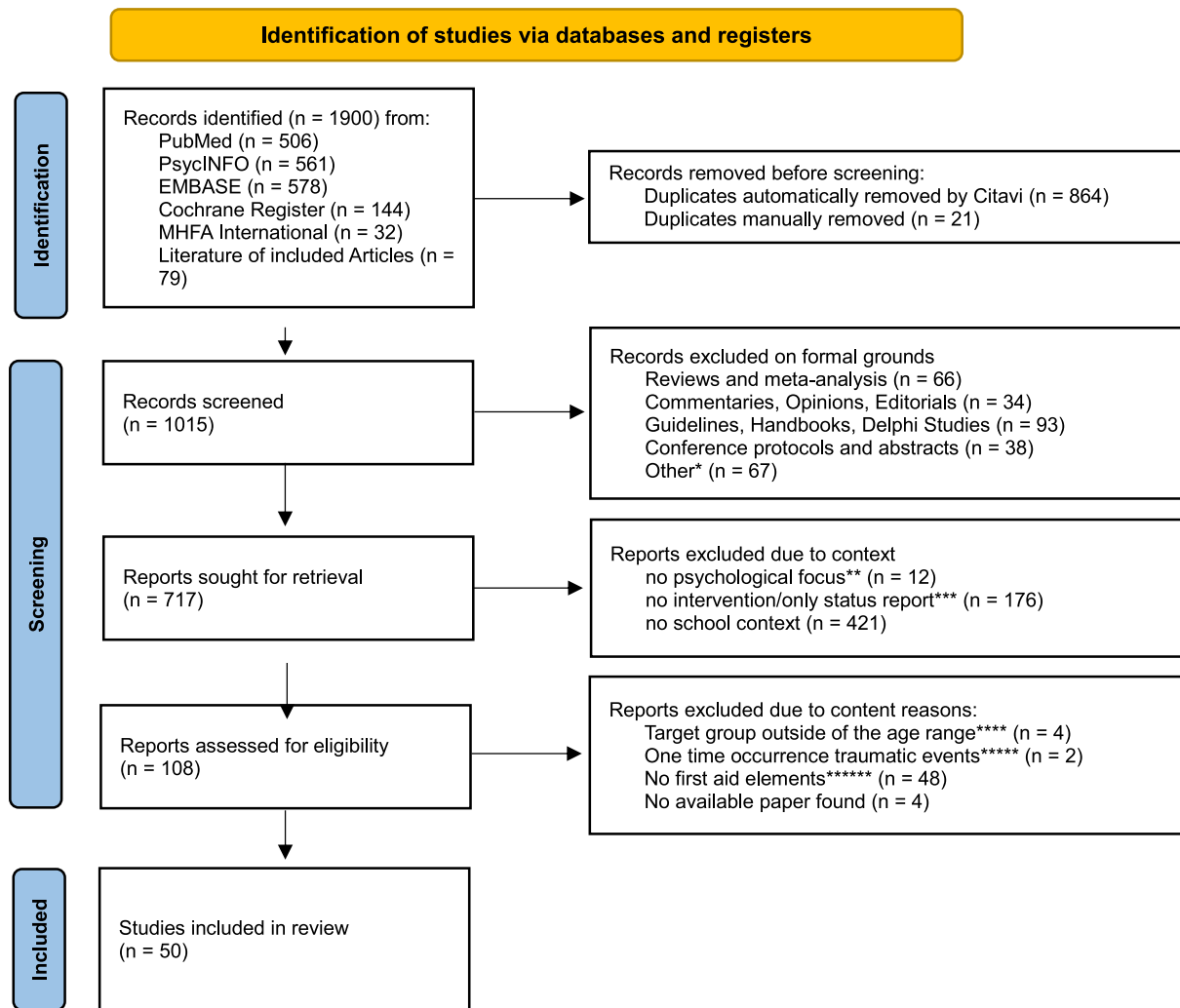


Fig. 1. PRISMA flowchart.

*This category includes, among others, dissertations, grey literature and articles published in languages other than English or German.

** This category includes, among others, studies on physical first aid, climate change, SARS-CoV-Infections and methodology.

*** This category includes studies, that do not describe the impact of an intervention (such as a seminar or lecture), but either the impact of a bigger external force (such as lockdowns due SARS-CoV or severe physical illnesses) or description of a status (such as the mental health of a certain profession in a specific country).

**** The target age group included in this study is 10–19 years based on the WHO definition of adolescents.

***** This category includes, among others, interventions after natural disasters (such as earthquakes) or human disasters (such as mass shootings), if the disasters are not expected to happen on a regular basis and the intervention has the aim of minimising the long-term-impact of this specific traumatic event. If, on the other hand, interventions were held on how to deal with stress in difficult situations in general, the studies qualified for further review.

***** This category includes interventions, that do not have elements on how to help others but focus solely on informing about mental illnesses (such as most stigma-reduction-interventions) etc. without identifying concrete options for action when confronted with another person's mental health.

as a 3-day intervention occurring every Monday for 3 weeks for example.

- 3) Booster/refresher sessions: Information on booster/refresher sessions.
- 4) Fees: Price for the program.
- 5) Group size: number of individuals taking part in the group intervention.
- 6) Course Materials: such as analogue manuals or digital materials
- 7) Interactive components: It was recorded, whether the program contains interactive components like role-playing, which provide opportunities to apply theoretical knowledge. This category does not include discussions or Q&A sessions.
- 8) Easy access: Efforts for reducing barriers, both at the level of language and at the level of content; An example of a barrier reduction would be the ability to access information in various

languages or in an easy-to-use language for non-native speakers, or a modification to cater to students with learning disabilities.

- 9) Instructors: Information regarding the qualification and selection of instructors of the interventions is provided, including the distinction between external and internal instructors. The latter category refers to instructors who are employed by the institution where the intervention is delivered (i.e. teachers). Information regarding the professional qualifications of instructors was documented. Individuals lacking a specific professional background were designated as "lay" instructors, such as teachers without additional psychology qualifications.
- 10) Peer supporters: Inclusion of individuals with their own experience of mental disorders, who are specifically trained to provide peer support to others based on their own mental health experience (Simmons et al., 2023). The inclusion of any form of peer support was noted in this category. It was differentiated between

a) face-to-face involvement, where the peer supporter was physically present or connected via video call, b) video involvement, where an interview or statement by a peer supporter was recorded and shown during the intervention and c) vignettes, where experiences were reported in writing.

- 11) Target group: In terms of target group, a distinction was made between students and school staff (teachers, school nurses, school psychologists, school social workers or administrative staff). When students were the target group, the targeted age range was recorded.
- 12) Focus: It was noted, if the intervention had a specific focus on a particular illness or a specific form of mental health crisis (e.g. suicidal ideation).

Methodological aspects and quantitative data were evaluated as follows:

- 1) Type of study: The categorisation of studies was recorded, distinguishing between qualitative and quantitative approaches. For qualitative studies, the assessment method was documented (e.g. interviews, observation protocols, focus groups or open-ended questionnaires). For quantitative studies, the assessment focused on the inclusion of a control group, the nature of the control group, and the randomisation of group allocation.
- 2) Timeline: It was noted at which time points the evaluation was carried out. This includes the options a) before an intervention (pre), b) within a week after the intervention (post) and/or c) later than a week after the intervention (follow up).
- 3) Outcomes and questionnaires: Study outcomes were documented together with the corresponding measurement tools. "Customized" was noted for individually created measurement tools, while standardised questionnaires were recorded by name. In order to facilitate a more structured analysis of the outcome measures and to improve the comparability of the studies, they were grouped into five main categories. These categories are as follows:
 - Knowledge and Attitudes: This category covers a range of topics, including the assessment of mental health literacy and the examination of stigma.
 - Confidence and Intention: This category encompasses the confidence and intention of the participants to apply the skills they have learned.
 - Behaviour and Action: This category covers a range of variables, including an assessment of the effectiveness of the first aid skills acquired and the frequency with which they are used following the intervention, as well as the frequency of help-seeking behaviour.
 - Participants' Mental Health: This category includes participants' psychological distress as well as objective factors that may be related to mental health issues, such as absenteeism.
 - Acceptance and Satisfaction: This category includes aspects such as participant satisfaction and website usage.
- 4) Additional questionnaires: If additional questionnaires were used that could not be associated with a studied outcome, the name of the questionnaire was documented in this section.
- 5) Sample size: The study sample size (number of participants who completed the intervention and all evaluations) was noted with specification of the number of participants in the intervention group and control group.
- 6) Impact: It was noted, which outcome measures changed significantly by the studied intervention as reported in the respective paper by the authors. Significant outcomes were categorised into the aforementioned categories. For all studies that evaluated outcomes at more than one time point after the intervention, the reviewers stated whether the significant changes in the outcomes were sustained at follow-up.

If any information was not available in a study for any of the mentioned categories, the category was labelled as "N/A" for that particular study.

3. Results

The interventions most frequently reviewed were *Youth Mental Health First Aid* (YMHFA; $n = 10$), *Teen Mental Health First Aid* (tMHFA; $n = 8$), *Youth Aware of Mental Health Program* (YAM; $n = 5$), *Wellbeing in Secondary Education* (WISE; $n = 4$), *Question, Persuade and Refer* (QPR; $n = 4$) and *Signs of Suicide* (SOS; $k = 4$). As WISE incorporates elements of YMHFA, papers including programs developed by MHFA Australia account for nearly half of the publications included. An overview of these interventions is given in Table 1.

A total of 50 papers were included and subjected to further analysis for this systematic scoping review. In accordance with the established inclusion criteria, all papers were published between the years 2000 and 2023. It is noteworthy that only four papers had been published prior to 2008, with the number of publications increasing from 2018 onwards (see Fig. 2).

The majority of studies ($n = 42$) focused exclusively on a single intervention. A mere eight publications incorporated multiple intervention programs in their respective studies. Of these publications, five compared a one-day and a two-day version of the same program, one reported on two different interventions for school staff and students, one compared the effectiveness of two different QPR versions, and one compared QPR, YAM and an awareness session. Results of three studies are reported in two publications each so our review includes the analysis of 55 interventions from 50 published studies.

The mode of delivery (in person, blended or digitally) was reported for less than half of the interventions ($n = 24$), with the majority of these interventions ($n = 21$) being conducted in person, with some incorporating video material. Three interventions employed a blended approach, and none was exclusively digital. The BEAM program, which is designed for school staff, is primarily delivered digitally but includes in-person peer coaching. Two studies evaluated the STORM program, which combines a game app with in-person live-experience sessions.

For 39 of the interventions, the duration was documented. For both target groups, school staff and students, the majority of programs had a total duration between three and eight hours ($n = 25$). Nine programs were found to have a duration of less than three hours, while five programs had a duration of more than eight hours. The average duration of the programs was 5.83 h, with differences between interventions for school staff (7.08 h) and students (4.51 h).

Among the 40 interventions for which information on the time allocation was provided, it can be observed that the majority of programs for students were multi-day interventions, with the sessions spread over non-consecutive days ($n = 16$). In contrast, interventions for school staff often took place on one day ($n = 11$), or in the case of multi-day interventions, on consecutive days ($n = 3$). The mean duration of a session in the evaluated programs was 3 h (students: 1.10 h; school staff: 4.85 h), based on the information provided for 30 programs. In three studies, the institutions or participants had the opportunity to choose between different time allocations with identical overall time and content. Five studies included interventions of varying lengths, with the option of delving deeper into specific areas for different groups of employees.

In four programs refresher courses are offered, in 12 programs there are no refresher sessions and for the other interventions no information about refresher sessions was available.

Of the 55 interventions, 29 incorporated interactive elements, most frequently role-play activities (59%). Two interventions were explicitly identified as lacking any interactive components. A mere one-third of the interventions with interactive elements were targeted at staff.

In terms of accessibility, almost no information was provided about the languages in which the respective program materials are available.

Table 1

Overview of the most frequently reported school-based psychological first aid interventions – information based on the according websites (last checked 12.2023) and descriptions in the included studies.

Name	Description
Teen Mental Health First Aid (tMHFA) and Youth Mental Health First Aid (YMHA)	The Mental Health First Aid (MHFA) program was first established in Australia in 2000 by Kitchener and Jorm. Over the past two decades, more than 4 million people worldwide have been trained by accredited MHFA trainers. Starting as an adult program, the courses have since been differentiated for different target groups, including teenagers (tMHFA) and adults working with teenagers (YMHA). Teen Mental Health First Aid (tMHFA) aims to build peer-to-peer support among teenagers by increasing mental health literacy, reducing stigma and improving MHFA behaviours. The content of the program does not focus on recognising specific mental illnesses, but rather on teaching teenagers general behavioural mechanisms. A five-point action plan is taught, consisting of 1) looking for warning signs, 2) asking how they are, 3) listening up, 4) helping them connect with an adult and 5) your friendship is important. In most cases, the program consists of 3 face-to-face sessions of 75 min each, delivered by MHFA-trained instructors. The Australian MHFA website (www.mhfa.com.au) advertises two age-appropriate courses for secondary school students in Years 7–9 and Years 10–12. Youth Mental Health First Aid (YMHA) has been developed to teach adults how best to help young people with mental health problems. One possible target group for the YMHA program is school personnel such as teachers, school nurses or school administrators. YMHA teaches participants about the most common mental disorders in adolescents and how to use the ALGEE Action Plan to help their students. The ALGEE Action Plan consists of 1) Assessing Risk of Suicide or Harm, 2) Listening Non-judgmentally, 3) Giving Reassurance and Information 4) Encouraging Person to Get appropriate Professional Help and 5) Encouraging Self-help Strategies. Duration and format depend on the country in which the course is offered: the US MHFA website offers both a 6.5-hour face-to-face program and a blended program with a 2-hour online component and a 4.5–5.5 h face-to-face component (www.mentalhealthfirstaid.org), while the Australian website promotes a 14-hour course that can be taught either face-to-face, blended face-to-face (with a 5–7 h digital component and a 7 h face-to-face component) or blended online (with a 5–7 h digital component and a total of 7.5 h of video-conferencing) (www.mhfa.com.au). Costs for the program vary depending on the country and instructor, and are therefore individual. The websites do not provide a specific price range.
Youth Aware of Mental Health Program (YAM)	YAM is a Swedish mental health promotion program aimed at adolescents aged 13–17. The program has been implemented worldwide, with approximately 85,000 teenagers having received training. The five-hour course spans over a period of three weeks and is taught by outside trainers who are experienced in working with groups of youth. At least one of the trainers present is certified through a one-week training course. The program aims to increase awareness of risk and protective factors associated with suicide, such as depression, anxiety, social support, and coping with stressful life events. The YAM Interventions relies on student interaction through role-playing and student-led discussions, rather than lectures. The YAM website (www.Y-a-m.org) currently offers course materials in English, Gujarati, Swedish, and Norwegian. The materials are culturally adapted and include information about local mental health institutions. In 2010, a European study compared YAM to QPR and ProfScreen, an intervention in which professionals screened students for mental difficulties. The study included over 11,000 students, and YAM was the only intervention that effectively reduced the number of suicide attempts and severe suicidal ideation in adolescents ((Wasserman et al., 2015). No cost information was available on the website or in any of the studies.
Wellbeing in Secondary Education (WISE)	The WISE program is a compilation of interventions designed to support the mental health of school staff and improve their ability to assist students with mental health issues. WISE comprises two to three components: 1) a few nominees at each school take part in a two-day standard MHFA course. After having completed the training, the attendees are guided to set up a peer support service for their colleges 2) a similar to larger number of staff is trained within a two-day YMHA course (for further detail see paragraph “Teen Mental Health First Aid (tMHFA) and Youth Mental Health First Aid (YMHA)”). 3) In Kidger et al., 2021 the remaining staff received a one-hour awareness-raising session. The cost per school was calculated to be around £9000 (Kidger et al., 2021)
Question, Persuade and Refer (QPR)	The QPR Institute, founded in the USA in 1999, offers a variety of different courses for adults and is one of the most widely used interventions in the USA. In addition to the standard QPR training, the Institute promotes specialised programs, e.g. for first responders, elder suicide, and school health professionals/youth workers/mentors/advocates. However, the courses analysed in this review are all part of the standard program, as no studies on the school health professional course met the inclusion criteria for this review. In accordance with the review's inclusion criteria, this work only includes interventions held for teachers. The QPR website (www.qprinstitute.com) offers both online and face-to-face training by certified trainers. The QPR program aims to reduce suicide rates by teaching first aid in three steps: 1) Questioning: Participants are taught to recognise warning signs of suicidal behaviour in others and to actively question them about their suicidal intentions. 2) Persuade: To qualify as gatekeepers, participants are trained to listen empathetically, offer support, and encourage people to seek treatment. 3) Referral: Participants are encouraged to make a referral for treatment and to support the person at risk of suicide to follow through with treatment. The general online QPR training takes approximately 60 min in an asynchronous format, certifies participants as gatekeepers for two years, and costs \$29.95/person. For the face-to-face training, no further information on standardised length or cost could be found on the website.
Signs of Suicide (SOS)	Signs of Suicide (SOS) is a US-based program that was first evaluated in 2004. Both a program for high school students and an adapted program for middle school students are available. SOS consists of two parts, the first being a curriculum-based educational component and the second being a screening form to be completed by all students. According to the SOS website (www.mindwise.org/sos-signs-of-suicide), the total training time for students is approximately 50 min. The first part aims to raise awareness of suicide and common risk factors such as depression and substance use and to teach students how to recognise and respond to warning signs of suicide in themselves and others. Students are taught to follow the ACT: A – acknowledge signs of suicide and take those signs seriously, C – show the other person that you care about them, T – talk to a responsible adult. Regular classroom teachers are provided with detailed instructions and the materials needed to deliver the unit, including video interviews of people's recovery journeys. No special training or certification is required for teachers to run an SOS class, but additional support is offered through a fee-based 2-hour workshop. To create a trusting and responsible environment outside of peer-to-peer support, schools are provided with materials to organise parent meetings. The second part of SOS is a depression screening form that all students must complete. After completing the questionnaire, the students score themselves and are advised to seek help if they reach a certain score. To this end, students are provided with an interpretation sheet and a description of resources available within and outside of school. According to the SOS website, the annual licence to teach SOS is \$500 per school for the first year, with a \$200 reduction for a subsequent licence and the possibility of applying for a grant. Annual refresher materials are advertised on the website.

The only exception is the STORM intervention where it was stated that the associated app is available in both Dutch and English.

The most frequently utilised materials in the interventions were informational manuals. It was indicated that manuals were employed in two-thirds of the interventions targeting students ($n = 17$) and approximately half of the interventions targeting school staff ($n = 16$).

In 45 out of the 55 programs reviewed, no information was provided about costs. In five studies, it was indicated that participation was free of charge for study participants. However, no information was provided about costs outside of the study. For the limited number of programs where costs are specified, a direct comparison is challenging due to the variation in the services included in each.

Only 22 of the programs provided information regarding the instructor's status as internal or external staff. The majority of these interventions were led by external instructors ($n = 18$), with two instances of internal instructors and two instances of both internal and external instructors. With regard to the instructors' qualifications, it is notable that 60% of the included studies ($n = 33$) did not provide any information. The majority of the interventions for which data was provided were conducted by ($n = 14$) or supervised by ($n = 2$) instructors with a professional therapeutic background. Of the six interventions conducted by trained laypeople, four were held by teachers and two by social workers.

Of the 15 interventions that referenced the utilisation of components of lived experience of mental disorders, two interventions incorporated in-person lived experience components, ten interventions included videos of affected individuals, while three interventions incorporated vignette cases into the training program. With regard to the remaining 40 programs, the relevant information is lacking.

The primary target groups of the programs were nearly equally divided between students ($n = 26$) and staff ($n = 29$). Of the 26 papers published on student interventions, 11 papers on six programs (Head-Strong, MAKINGtheLINK, SOS, Sources of Strength, STORM and tMHFA) included learning sessions for teachers and/or parents. One paper about QPR on staff intervention mentioned additional training for school counsellors as instructors.

Of all the programs reviewed, 38 revealed information on the targeted age group of students. This encompasses both interventions directed at students (i.e. the age of the participants) and interventions directed at staff (i.e. the age of the students with whom the staff works). The median age of these 38 interventions was 14.6 years, with a range between 10 years and 18 years.

In the case of 43 interventions, the size of the participant groups was not specified. However, of the 12 programs for which data was provided, four had a maximum of 16 participants per group (all targeting school staff), while eight had a maximum of 30 participants.

In both the student and staff targeted interventions, suicide, depression, stress and anxiety were frequently discussed themes, whereas eating disorders, substance use or ADHD were not addressed to any significant extent in either target group. Five papers on interventions targeting students explicitly stated that the focus of the intervention was not one specific mental disorder.

14 out of the 26 interventions targeting students incorporated the use of videos (54%), one was supported by a website and two by specific apps. Among the 29 interventions targeting school staff, only 8 (28%) used videos, and one was web-based. In addition to the mentioned materials, other resources utilised in the interventions include posters, referral cards, and workbooks.

Of the 55 studies, three were qualitative studies, 42 were quantitative studies and 10 combined both qualitative and quantitative aspects. In the qualitative studies, outcomes were measured with questionnaires (69%), observation (31%), interviews (31%), and focus groups (23%). It is noteworthy that half of the quantitative studies did not include a control group. Of the remaining 26 studies, 20 employed a waiting list control group, while five used participants from a distinct alternative intervention as their control group. One study employed both a waiting

list and an alternative intervention as control groups. Fifteen of the studies employed randomisation.

20 studies used pre-, post- and follow-up evaluations, 16 only pre- and follow-up evaluations and the remaining studies either collected data only before and directly after the intervention ($n = 8$), or only at one time point ($n = 8$).

The interval between the interventions and the collection of the follow-up data varied considerably, ranging from less than one month to three years. The majority of follow-up data were collected in the first six months post intervention.

The mean study size was 793, with a considerable range from 20 to 8192 study participants. The average study size for school staff interventions (352 participants) was smaller than that of student interventions (1143 participants).

As stated in the methods chapter, the outcome measures were divided into five categories. The category evaluated the most was "Knowledge and Attitudes", with 75% of all studies evaluating this aspect, followed by "Confidence and Intentions" (55%), "Behaviour and Actions" (51%), and "Acceptance and Satisfaction" (42%). The least rated category was "Participants' mental health" (38%). Only four studies encompassed an analysis of all categories.

The outcomes were evaluated by using over 200 different questionnaires. Of these, more than 150 were customized specifically for the intervention. For the category "Participant's mental health" standardised questionnaires were utilised in 95% of studies. For the category "Knowledge and Attitude" this figure was 43%. For the category "Confidence and Intention" it was 27% and for "Acceptance and Satisfaction" 17%. A total of seven questionnaires were utilised in more than two studies: the Australian National Survey of Youth Mental Health Literacy (4), the Depression Stigma Scale (6), the General Help-Seeking Questionnaire (3), the K6 (5), the Social Distance Scale (5), the Strengths and Difficulties Questionnaire (4) and the Youth Risk Behaviour Survey (4). A comprehensive overview of the questionnaires utilised can be found in Table S2.

Eight studies could not be analysed statistically, as they collected only qualitative data or data in the category "Acceptance and Satisfaction" Furthermore, two studies had to be excluded due to the absence of longitudinal data.

Table S2 provides detailed information about significant changes in the various outcome measures for each study. We are aware that effect sizes would be a more appropriate indicator for the effects of the interventions, as statistical significance also depends on factors unrelated to the effect size such as the sample size. However, effect sizes were only reported in a subset of studies. Therefore, we opted for reporting statistical significant changes and also using this parameter for further analyses. Thus the following results should be interpreted with caution. In Table 2, information is provided about the frequency of statistically significant improvement for outcomes in the various categories per target group.

The outcome measure categories exhibiting the highest rates of significant changes were "Knowledge and Attitude" and "Confidence and Intention." In contrast, outcomes in the categories "Behaviour and Actions" and "Participant Mental Health" demonstrated less frequent significant changes.

Results for the different intervention programs are summarized in Table 3. The programs exhibiting the highest number of significantly improved categories were YMHA and QPR. While both YMHA and QPR demonstrated strength in the categories of "Knowledge and Attitude" and "Confidence and Intention", QPR had the strongest impact in the category "Behaviour and Actions" followed by the YAM intervention. The SOS and YAM interventions appeared to have the greatest impact on the participants' mental health.

For all studies that collected data at more than one point after the intervention, we analysed whether the significant changes were maintained at follow-up. A total of 24 studies allowed conclusions to be drawn about the sustainability of significant changes, the majority of

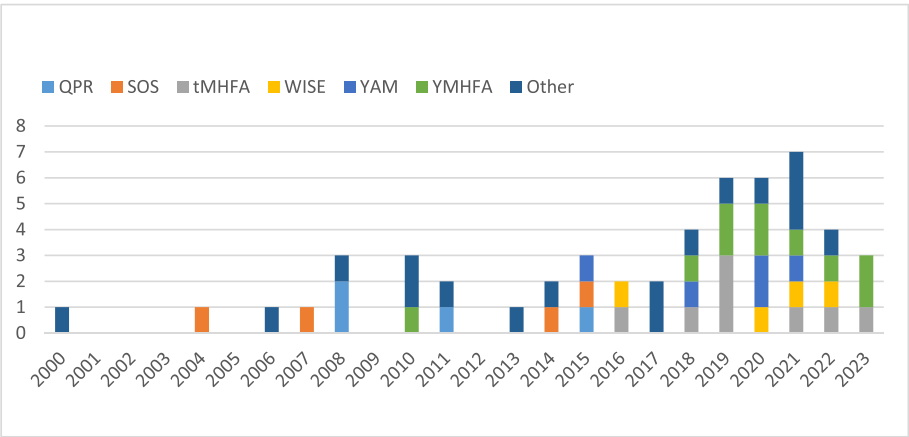


Fig. 2. Published studies of school-based psychological first aid interventions by year of publication.

which showed that the changes were maintained. This is true for all categories and programs.

Notably, two studies showed paradoxical results in one category each. Reis and Cornell (QPR) found a significant reduction in referrals to mental health services after the intervention. Meanwhile, Hart et al. (tMHFA) described a significant increase in the “Stigma - would not tell anyone” subscale at follow-up.

4. Discussion

We aimed to provide a systematic scoping review of school-based psychological first aid programs. A total of 50 articles analysing 55 psychological first aid interventions were included. The analysis remains largely descriptive, as the available published data do not permit a comparative analysis of the efficacy or effectiveness of the various interventions. This finding is in alignment with the results of a recent Cochrane review (Richardson et al., 2023). Where studies included a quantitative assessment, most used specially designed questionnaires, resulting in over 200 different questionnaires with most of them not being well psychometrically validated. Nearly half of all studies did not employ a single previously validated questionnaire. This is particularly evident in the case of interventions for school staff, where only 25% of studies used a previously validated questionnaire. In order to facilitate meaningful comparison, future studies should employ well-established, standardised questionnaires. The most commonly employed questionnaires were the K6 and the Strengths and Difficulties Questionnaire, which were utilised in approximately 10% of all evaluated studies. In addition, few studies had a randomized design. The average study size was commendable, with approximately 850 participants per study. However, the range was considerable, with one-third of the interventions having fewer than 200 study participants and 15% of all studies having fewer than 50 participants.

In order to systematically analyse outcomes, we have divided the instruments used in the categories “Knowledge and Attitudes”, “Confidence and Intentions”, “Behaviour and Actions”, “Acceptance and Satisfaction” and “Participants’ mental health”. The most frequently evaluated outcome category was “Knowledge and Attitude”. This may be attributed, at least in part, to the relative ease with which mental health literacy and stigma can be evaluated by the use of questionnaires, in comparison to the actual behaviour of the participants. However, given that one of the primary objectives of the evaluated psychological First Aid courses is to enhance the participants’ first aid abilities, greater attention should be accorded to the category of “Behaviour ad Actions” than has previously been the case. It is also important to bear in mind that valid evaluation of the effectiveness of the interventions is extremely difficult, as improvements in course participants’ mental health knowledge and skills in dealing with people in mental health

Table 2

Overview of significant changes in outcome measures per target group out of the studies collecting the respective outcome measures.

	Knowledge	Confidence	Behaviour	Mental health	Total
Students	77% (17/22)	69% (9/13)	24% (4/17)	47% (7/15)	55% (37/67)
School staff	89% (16/18)	100% (16/16)	45% (5/11)	25% (1/4)	78% (38/49)
Total	82.5% (33/40)	86% (25/29)	32% (9/28)	42% (8/19)	65% (75/116)

Table 3

Overview of significant changes in outcome measures per program out of the studies collecting these outcome measures.

	Knowledge	Confidence	Behaviour	Mental health	Total
tMHFA	83% (5/6)	100% (6/6)	25% (1/4)	33% (1/3)	68% (13/19)
YMHFA	90% (9/10)	100% (9/9)	33% (2/6)	0% (0/2)	74% (20/27)
SOS	100% (4/4)	None	0% (0/3)	75% (3/4)	64% (7/11)
QPR	100% (4/4)	100% (3/3)	75% (3/4)	0% (0/1)	83% (10/12)
YAM	50% (1/2)	50% (1/2)	50% (1/2)	100% (2/2)	62.5% (5/8)
Other	71% (10/14)	67% (6/9)	22% (2/9)	29% (2/7)	51% (20/39)
Total	82.5% (33/40)	86% (25/29)	32% (9/28)	42% (8/19)	65% (75/116)

tMHFA: Teen Mental Health First Aid; YMHFA: Youth Mental Health First Aid; SOS: Signs of Suicide; QPR: Question, Persuade and Refer; YAM: Youth Aware of Mental Health Program.

crisis are only surrogate outcomes. The ultimate target of the intervention is not the course participants themselves, but people in their social environment. Accordingly, interventions that train school staff in psychological first aid are designed to improve pupils’ mental health in the long term. Consequently, it is somewhat surprising that only four of the interventions targeting school staff measured pupils’ mental health. A mere two studies analysed the impact of staff interventions on pupils’ knowledge, attitudes and behaviour. To comprehensively grasp the impact of interventions, it is imperative to assess the burden of mental disorders on pupils over time, with and without systematic provision of a psychological first aid program.

Looking at the impact of the interventions on the different outcome

measures, the interventions targeting school staff have shown more frequently a significant outcome overall, as well as in the categories of “Knowledge and Attitudes”, “Confidence and Intentions” and “Behaviour and Actions”. In contrast, in the category “Mental Health of Participants” interventions targeting students had more frequently a significant outcome. It should be considered, that the superior outcomes observed for school staff may be biased by the use of more individualised questionnaires, which may have confounded the results. Furthermore, staff members may be more inclined to provide responses that they believe will be perceived favourably following the implementation of interventions - analogous to the phenomenon of social desirability. It is also important to acknowledge that adolescents may undergo significant psychological changes within a relatively short timeframe, which can occur independently of the interventions. These changes can potentially distort the results of any study conducted with this age group, indicating the need of controlled studies, involving a control group without intervention. Given that a considerable number of studies were authored by individuals with a vested interest in the design and dissemination of the programs in question, it is imperative to consider the possibility of unintentional bias. Therefore, double blind randomized controlled studies would be desirable, to either compare specific interventions with each other or with unspecific control interventions.

Approximately half of the articles analysed were conducted on programs designed by MHFA Australia or based on one of their programs. Given that MHFA Australia is a leading organisation in the field of Mental Health First Aid Seminars, it is reasonable to posit that its capacity to invest in research is likely to be greater than that of smaller organisations. It is possible that programs offered by smaller, less well-known organisations may exist, but that no publications have yet been produced about them. Consequently, this overview of existing programs may be incomplete, despite providing a complete overview of the existing literature.

Most interventions were predominantly face-to-face, indicating that there might be a so far largely unrealized potential for improvement by integrating digital interventions, as these have many advantages in terms of flexibility of time and location, gamification, scalability and the reduction of barriers, e.g. by providing content in different languages. However, exclusively digital interventions have limitations, e.g. the difficulty to incorporate interactive elements, and the potential risks associated with unsupervised psychological interventions. Thus, the integration of digital interventions in face-to-face programs, a process known as blended learning, might be most promising. Blended learning has been demonstrated to enhance adherence and efficacy while reducing dropout rates and yields superior outcomes compared to either analogue or digital interventions (Liu et al., 2016; Reavley et al., 2021; Vallée et al., 2020). Among the investigated programs only two have employed the potential of blended learning, and no study has compared the blended approach with a pure face-to-face program. Thus, future studies should investigate the benefits of integrating digital components in school interventions.

A notable discrepancy was identified in the time structure of interventions targeting students and those targeting school staff. The interventions targeting adolescents were typically conducted in short sessions, held on several non-consecutive days. In contrast, interventions targeting school staff were frequently conducted over the course of a single day, with a longer average duration of the teaching session. Presumably this difference is primarily due to practical reasons (integration of student interventions in students' schedules and reducing the loss of employees' work to a single day). Further research should focus on the investigation, which schedule is better suited to convey the course content.

For both target groups, there is only limited information on refresher or booster sessions. The lack of such sessions is probably due to organisational reasons rather than content-related ones. In particular, for low-base-rate events, such as suicide, the opportunities for gatekeepers to utilise and thus refresh their abilities are scarce, and skills may

deteriorate in the absence of regular use (Cross et al., 2011). In the context of physical health education, Hanauer et al. (2009) put forth the proposition that the utilisation of video applications on mobile devices or web-based interactive practice opportunities may serve as a viable solution for the maintenance of acquired competencies. Further research is necessary to compare the efficacy of interventions with and without refresher sessions, particularly in terms of long-term outcomes.

The integration of interactive elements was only referenced in approximately half of the articles in total. The fostering of supportive interactions among different actors in mental health interventions has been shown to have a positive effect on children and adolescents (García-Carrión et al., 2019). Furthermore, the incorporation of interactive elements, such as role-play practice, provides a valuable opportunity for learners to receive feedback on their performance during the learning process, which has been indicated to enhance outcomes in educational settings (Hattie & Timperley, 2007). However, the role-playing element was used in less than a third of all interventions. In Cross et al. (2011), the interactive version of QPR, which incorporates role-play activities, has demonstrated superior efficacy in enhancing total gatekeeper skills and general communication competencies, in comparison with the non-interactive version of QPR. In Wasserman et al. (2015, 2018), the role-playing activities were described as being well received by the students. The positive impact of user engagement has been demonstrated to be particularly advantageous in online contexts, with the potential to be achieved through the use of gamification (Gan et al., 2021). However, there is still a paucity of literature comparing psychological first-aid interventions with and without interactive elements.

Furthermore, there seems to be no initiative to provide programs with an easy access option, such as programs in a simple language, different languages or flexible time allocation. This may be attributed to the fact that the majority of the programs were conducted in an analogue format, which presents challenges in offering diverse languages or flexibility in time allocation. This represents a further potential benefit of digital interventions. The use of flexible time allocation may be particularly beneficial for teachers with varying working hours. Furthermore, the provision of easy language options and the option to participate in interventions in different languages could facilitate the inclusion of a more diverse range of learners, such as pupils who are not native in the school's language of education or neurodiverse students.

In the investigated literature there was only very limited information about the costs of the programs. However, costs and cost-effectiveness are highly relevant for the large-scale implementation of the programs, illustrating the need of future studies in this direction.

External professional instructors conducted the majority of the interventions evaluated in this systematic scoping review. There was, however, a lack of information on the concepts of what kind of people can offer courses outside of the study situation. This is a critical issue for large-scale and long-term implementation of the respective programs. As an example, the training of all adolescents at a given age in a region with one million inhabitants would require between 300 and 400 courses with about 30 participants every year. The utilisation of external, professional instructors offers the advantage of profound expertise in the domain of mental health and mental illness. However, this approach presents the challenge of limited accessibility for addressing queries or concerns that may emerge following the conclusion of the intervention. This is particularly evident in conjunction with the absence of refresher sessions, which precludes the possibility of a professional debriefing following the conclusion of the interventions. It would therefore be advisable to provide training for members of the staff to enable them to assume the role of a contact person in the event of any problems arising. However, this was only the case in under 40% of the interventions targeting students and two program targeting school staff.

The incorporation of lived experience has primarily been realized by using video recordings featuring affected individuals. The utilisation of video as a substitute for direct contact has the benefit of rendering such

contact more predictable and therefore more readily plannable. Nevertheless, it does not provide participants with the chance to interact with an individual who has been affected. All four studies that evaluated data in the category “Acceptance and satisfaction” on programs incorporating lived experience elements in the form of videos reported that the students held a positive view of the material. In fact, the videos were regarded as the most liked material in all of the studies. The students indicated that the videos facilitated their ability to empathise with the adolescents and to envisage a scenario in which they might be required to offer assistance, thereby enabling them to anticipate potential challenges. Only one program incorporated face-to-face lived experience elements (Tuijnman et al., 2022), with 53% of adolescents reporting benefit from this element. More evidence is needed regarding the benefit of incorporating elements of lived experience.

There were conceptual differences between programs with respect to the content. Some programs concentrated on specific mental disorders or syndromes, while others did not utilise diagnostic classification. Topics most frequently addressed in student interventions were depression and suicide, whereas for school staff, the focus was on suicide and self-injury. It is notable that eating disorders, bullying, ADHD, stress and anxiety had a less prominent role in the interventions, even if these issues are among the most prevalent mental health concerns among adolescents (<https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>, 2021 – checked 07.2024).

Following a thorough review of the available literature, a number of recommendations for future interventions can be formulated. These recommendations are guided by the results of this review, e.g. by aggregating examples of good practice and informed by methodological considerations, with the objective of establishing more robust evidence for psychological first aid programs and their effective elements (Box 2).

It is acknowledged that the potential exists for relevant publications to have been overlooked during the course of this investigation, due to the consultation of only standard sources of published literature. It is imperative to note that the present review encompasses exclusively those programs that have been analysed and published in English or German. Despite the meticulous development of the search string, it is possible that relevant papers may not have been identified. The review exclusively encompasses studies that reference first aid as a component of the intervention. However, the distinction between awareness seminars and first aid seminars proved challenging, which has necessitated the exercise of individual judgment that may be susceptible to bias. As not all studies may have reported all structural aspects of the

interventions, the overview of the course structures may be incomplete. In some cases, it proved challenging to categorise the outcome measures, necessitating the application of individual and subjective judgment. Additionally, the specific outcomes measured by questionnaires were not always precisely defined, further complicating the comparison of studies. With regard to the utilisation of questionnaires, all questionnaires referenced by name and not indicated as specifically developed for the present study were classified as “not customized”. The authors of this review did not conduct any calculations; instead, they relied on the calculations and categorisation of significance presented by the original authors. This approach encompasses the non-uniform significance levels applied in the studies. Due to considerable heterogeneity between the studies included in this review with regard to intervention goals, outcome measures and measurement instruments, a meta-analysis was not a viable option. We also acknowledge that this review was conducted as part of the development of the HSN (Helfen in Seelischer Not) psychological first aid program. Three of the authors (M.S., P.K., and B. L.) were involved in the development of HSN and used the findings of this review to inform the program. This context should be considered when interpreting the findings, as it may have introduced the potential for bias.

Notwithstanding the aforementioned limitations, the existing body of literature on the subject of psychological first-aid information offers valuable insights into the state of knowledge in this domain and provides a framework for the future advancement of this increasingly relevant approach to enhancing mental well-being among adolescents. A plethora of interventions has exhibited substantial potential in enhancing psychological first aid competencies and the mental well-being of the school population. Although evaluating its efficacy is challenging from a methodological perspective, the available data clearly justify its implementation in everyday school life. Our review highlights the need for a methodological framework to evaluate school-based psychological first aid programs. The existing literature provides valuable guidance on developing quality criteria here. The integration of blended learning components, gamification, and the adaptation of content to align with the most prevalent mental illnesses among adolescents, along with the possible inclusion of lived experience participation, has the potential to enhance the efficacy of these programs. In light of mounting pressure from global challenges, the implementation of well-evaluated psychological first aid training programs could prove to be a crucial step in safeguarding and promoting the mental wellbeing of adolescents both in the present and in the future.

Box 2

Recommendations for future interventions and studies.

Recommendations for future Interventions

- Blended approach with the inclusion of online material
- Interactive elements
- Integration of lived experience of mental disorders
- Focus on expertise in interaction and not only on theoretical knowledge
- Appropriate time structure of the course inclusive booster/follow-up sessions
- More sustainable effect through institution immanent instructors
- Reducing access barriers (e.g. availability in various languages)

Recommendations for future Studies

- Randomized controlled study design
- Direct comparison of different programs desirable
- Evaluation of programs with and without specific elements (online-materials, interactive sessions, sessions with lived experience, etc.)
- Outcome measurement among course participants in the categories “Knowledge and Attitude”, “Confidence and Intention”, “Behaviour and Actions” and “Mental health” by using established standardised instruments
- Additional outcome assessment in the target group (e.g. in pupils in case of programs for school staff)
- Independent studies (study should not be performed by the institution, that developed a specific program)

CRediT authorship contribution statement

Johanna Fugmann: Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Martin Schecklmann:** Writing – review & editing, Supervision, Conceptualization. **Josef Eisl:** Writing – review & editing, Data curation. **Peter M. Kreuzer:** Writing – review & editing, Supervision. **Stephanie Kandsperger:** Writing – review & editing. **Romuald Brunner:** Writing – review & editing, Supervision. **Berthold Langguth:** Writing – review & editing, Writing – original draft, Supervision.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors did not use AI or an AI assisted technology.

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Declaration of competing interest

None of the authors has a financial interest in relation to the review; M.S., P.K. and B.L. are involved in the development of the psychological first aid program HSN (Helfen in seelischer Not).

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.actpsy.2026.107738>.

Data availability

No data was used for the research described in the article.

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