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Applying a theory of change approach to develop and pilot a universal mental health literacy curriculum for adolescents

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Abstract

Universal evidence-based prevention and promotion programs lack in availability and scalability for child and adolescent mental health in Central and Eastern Europe. This paper describes the process of applying the theory of change to plan, develop, and pilot a mental health literacy intervention in Czech schools. The process of using theory of change to develop a complex intervention for mental health literacy is described across three stages: formative development, piloting, and evaluation. The application of evidence-based intervention was discussed within 64 diverse stakeholder meetings and tested over 2 years of piloting. The resulting theory of change map is described in the context of consideration for modifications, revisions, and recommendations for successful implementation of the developed intervention. Continued monitoring and evaluation and a formal evaluation of the effectiveness of mental health literacy curriculum within the region will be essential before scale-up.

KEYWORDS

adolescent health, education, implementation science, intervention development, mental health literacy, public health, theory of change

1 | INTRODUCTION

The Sustainable Development Goal target 3.4, the World Health Organization's Global Strategy for Women's, Children's, and Adolescents' Health 2016–2020–2030 and the Global Accelerated Action for the Health of Adolescents implementation guidance have increased commitments toward improving adolescents' mental health. Schools are recognized as an ideal platform for universal interventions, offering optimal feasibility, cost-effectiveness, scalability, and equity (Knapp et al., 2007; Patel et al., 2018; Rampazzo et al., 2016).

Included among the World Health Organization's most recent top five recommendations toward helping adolescents thrive are interventions to promote positive mental health, prevent mental disorders, self-harm, and suicide, and reduce risky behaviors (WHO, 2020). Progress in the field of mental health has been limited in the region of Central and Eastern Europe (Winkler et al., 2017). However, recent nation-wide reform initiatives are underway, and

improvements are garnering political and public attention. In Czechia, child and adolescent mental health has been recently recognized as a priority, specifically mentioned in the National Mental Health Action Plan 2030. There remains a need for developmentally appropriate interventions globally (Kutcher & Wei, 2020), and locally interventions which are implementable within existing educational structures which adequately address the high levels of mental health-related stigma (Alexová et al., 2019; Winkler et al., 2017) and significant treatment gap for mental illnesses (Kagstrom et al., 2019).

Interventions focusing on mental health and well-being can positively impact the whole school environment and can be delivered schools in a cost-effective and equitable manner (Kutcher et al., 2016; Mcluckie et al., 2014). With adequate training and supervision, teachers can effectively deliver implementation of mental health programs (Durlak et al., 2011). Due to the frequency of interactions a with students, teachers are well positioned to support adolescents needing professional treatment on their pathway to seeking care (Lubman et al., 2016). Furthermore, evidence indicates that mental health literacy training (MHL) can appropriately detect, refer, and mitigate negative consequences of mental health problems in classrooms (Wei & Kutcher, 2014; Yamaguchi et al., 2020).

MHL includes (1) understanding how to obtain and maintain good mental health, (2) understanding mental disorders and their treatment, (3) decreasing stigma related to mental disorders, and (4) enhancing help-seeking efficacy (Kutcher et al., 2015). MHL is foundational for mental health promotion, prevention, and care (Jorm, 2015; Jorm et al., 1997; Kutcher et al., 2015). MHL interventions have been shown to decrease stigma (Mcluckie et al., 2014; Milin et al., 2016), facilitate help-seeking behaviors, and detect mental health problems (Alexander et al., 2013; Gulliver et al., 2010). The scope of MHL intervention content ranges from interventions specifically focused on mental illnesses (Corrieri et al., 2014; Newcomb-Anjo, 2019; Werner-Seidler et al., 2017) to social issues such as bullying (Evans et al., 2014). A shift toward a salutogenetic perspective rather than focus on knowledge of specific mental disorders or their treatments (Bale et al., 2018; Nobre et al., 2021) to increase subjective well-being, optimal functioning, coping, and resilience (Mansfield et al., 2020) is recommended. The mental health of children and adolescents can be best supported through an integrated framework that goes from promotion and prevention, early detection, and intervention to continued care covering all four components of MHL (Wei & Kutcher, 2012).

Social and Emotional Learning (SEL) interventions have been shown to improve student mental health (Durlak et al., 2011; Taylor et al., 2017). They are recommended as facilitators of mental well-being in schools (WHO, 2021). There is ample evidence of specific SEL content which works to improve social and emotional competencies in children and adolescents (CASEL, 2015), however, research examining specific content for MHL is less developed. As such, this study is designed to describe the process and content for the development of a universal MHL curriculum drawing from the state of the evidence in the field of MHL and SEL.

Theory of change (ToC) has been defined as a theory of how and why an initiative works and can be empirically tested by measuring indicators for every expected step on the hypothesized causal pathway (De Silva et al., 2014). The ToC process results in descriptions of how a program brings about specific long-term outcomes through a logical sequence of intermediate outcomes (De Silva et al., 2014). ToC is an appropriate tool for achieving program development, monitoring and evaluation, and for scaling up in any context in which feasibility, acceptability, and sustainability of programs have not been yet assessed. Furthermore, ToC is appropriate for complex interventions requiring high implementation fidelity (De Silva et al., 2014). Collaboration with key stakeholders in the codevelopment of interventions has been shown to be especially important for increasing impact and sustainability (Alsubaie, 2016; Han & Weiss 2005). This approach of an iterative development process including evidence-driven decision making supported by stakeholder engagement is being increasingly applied to successful public health interventions globally (Breuer et al., 2016).

The aim of this project was to use ToC to develop, pilot, and evaluate a MHL intervention for primary school students (ages 11–13) deliverable by trained teachers in Czechia.

2 | METHODS

The methods used for of ToC development are described in detail by De Silva et al. (2014) and further by Maini et al. (2018). The ToC methodology is recommended for the design of complex interventions (Connell & Kubisch, 1998; De Silva et al., 2014; Walker, 2015), and has been successfully implemented for high-impact public mental health interventions previously (Chibanda et al., 2016). Reporting of these methods and the entire ToC process follows the Checklist for reporting ToC in public health interventions by Breuer et al. (2016).

A ToC map was developed in consultation with stakeholders through workshops, interviews, discussions, working groups, document reviews, program observations, literature reviews, existing conceptual frameworks, and from feedback from beneficiaries of the intervention. A total of 64 in-person stakeholder workshops were held with a range of key stakeholders to inform formative development, piloting, and evaluation including formal group meetings with parents ($k = 1$), educators ($k = 6$), experts in MHL and SEL ($k = 30$), multidisciplinary teams ($k = 23$), and system level stakeholders ($k = 4$). Members of the research group for Child and Adolescent Mental Health (CAMH) at the National Institute of Mental Health (NIMH), Czechia designed and facilitated all workshops. Additionally, on-going consultations related to sustainability and scale-up are being conducted within the context of larger multisectoral meetings focused on the reform of mental health care in Czechia. Outcomes and decisions from the stakeholder meetings were triangulated with results from piloting to fine-tune intervention components and implementation aspects of the final MHL intervention.

2.1 | Topics covered in stakeholder meetings

Members of the CAMH working group facilitated meeting agendas in both English and Czech, while a cofacilitator appointed for each workshop led, took notes, or audio-recorded the meetings. Different workshops for groups were designed to balance power differentials. Workshops were held at the NIMH, Czechia, or the National Technical Library in Prague, or at schools and conference halls, lasting between 1 and 4 h. Informal communication through emails, telephone calls, and one-on-one consultations with specified experts contributing to building workshops' agendas and generated evidence to address assumptions for the ToC as necessary. The 64 workshops were held between 2017 and 2021 and spanned all three stages of ToC development, outlined below.

2.2 | Stages of ToC development

Three main stages were considered in the development of the ToC: Formative development, Piloting, and Evaluation. Scale-up was considered across all three of these phases, and the intervention components and evaluation methods were developed with sustainability as a goal. As such, rationale, assumptions, interventions, and indicators were mapped, tested, and adapted over the development of the ToC from 2017 to 2021. The resulting complex intervention (Všech pět pohromadě; English version: On My Mind) is represented in a ToC map (see Figure 1). All interventions, indicators, and remaining assumptions and further summarized across the stages of development below, including the rationale for various components of the curriculum.

2.2.1 | Stage 1: Formative development

The formative phase of ToC development included a series of workshops with diverse groups of stakeholders focused on identifying evidence-based practices for MHL, building consensus on the impact, the primary and secondary outcomes of the intervention, and mapping the implementation context in Czechia. To accomplish the latter, a situational analysis (SA) was performed to map relevant variables, including sociodemographic and economic characteristics, adolescent mental health service provision, teacher structures and training, political support, and financial structures (the SA was conducted in Czech language). We included several nation-level indicators (i.e., existing policy, plans, legislations, and funding) to inform sustainability and scale-up planning, as well as school-level

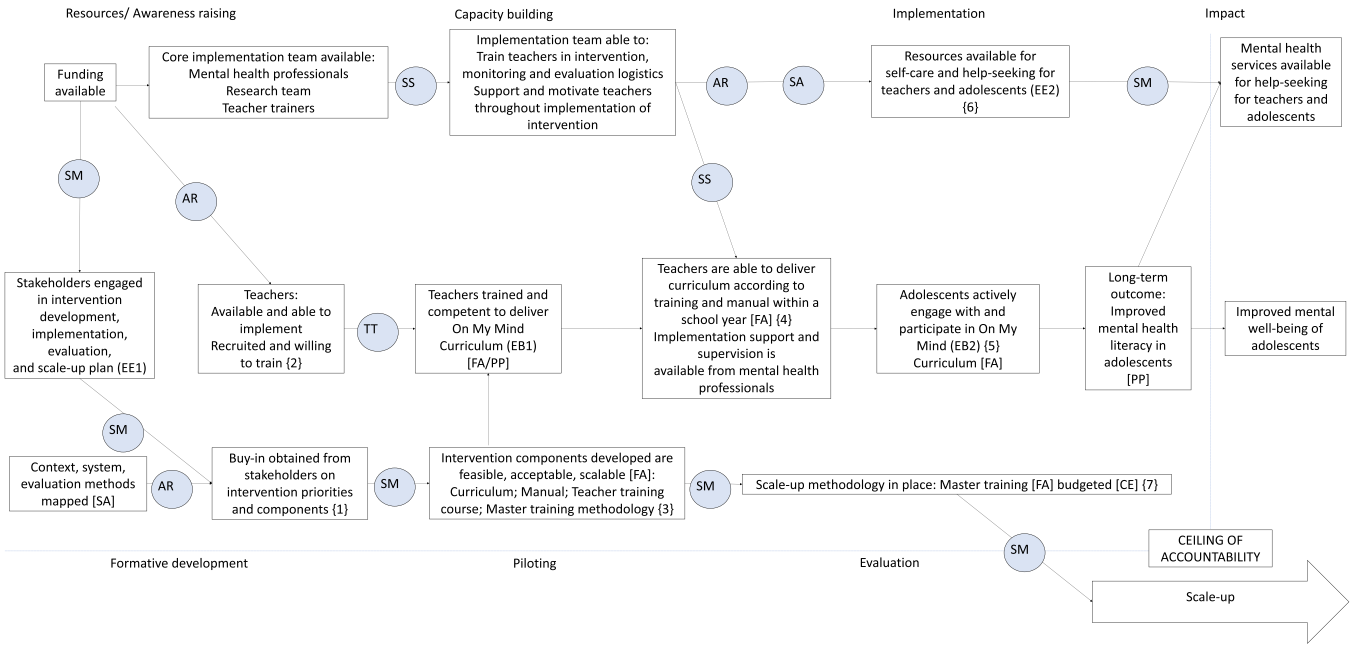

FIGURE 1 Theory of Change map for the On My Mind program in Czechia developed across three stages (formative development, piloting, and evaluation through randomized controlled trial). There are several *assumptions*: {1} establishing stakeholder buy-in would be maintainable, {2} integrating OMM within the existing educational framework would enhance the feasibility of implementation, {3} the results from piloting phase would be generalizable in the context of a randomized sample, {4} the revised OMM adequately equips teachers with evidence-based practices and training, {5} the implementation is possible even facing unprecedented circumstances (e.g., covid-19), {6} system level collaboration will enhance the outcomes related to prevention and promotion interventions and {7} evidence of effectiveness will contribute to uptake and scale-up of OMM. Outlined *indicators* included a situational analysis (SA), multiple fidelity assessment check (FA), cost-effectiveness (CE), and pre/post-evaluations (PP). Blue circles indicate *interventions*: AR, awareness raising; SA, situational analysis; SM, stakeholder meeting; SS, supervision & support, TT, teacher training. Two types of *rationale* are included: empirical evidence (EE1, EE2) and evidence-based methods (EB1, EB2). This ToC map shows only key assumptions, interventions, indicators, and rationale; additional are provided and explained in the main text.

indicators to ensure feasibility and acceptability in implementation. To inform the curriculum development with evidence-based content, we conducted a review of developmentally appropriate MHL content for school-aged children and adolescents to target building of relevant knowledge and skills for our target group (Kagstrom et al., 2023).

The formative phase of the ToC also included process interventions such as stakeholder meetings and awareness-raising activities, indicated in the ToC in Figure 1. Assumptions were addressed in the formative development phase, for example, as to whether, {1} long-term stakeholder buy-in results from on-going engagement with stakeholders via meetings and if {2}, integrating the intervention within the national educational framework under health education will result in an optimal implementation context. The assumptions are illustrated across the causal pathway of the ToC in Figure 1 as {1} and {2}, respectively.

2.2.2 | Stage 2: Piloting

Piloting was conducted from Fall 2018 through Spring 2020, over four academic semesters. In total, 15 teachers piloted the program across five Czech regions (Prague, Karlovy Vary, Central Bohemia, Liberec, and Olomouc). Throughout piloting, we aimed to identify strengths and weaknesses of lessons from the teaching perspective, strengths, and weaknesses of lessons in terms of providing students with an optimal learning experience, and active facilitators and barriers related to implementation of the intervention. Teachers evaluated every implemented lesson plan using an online form containing 19 open-ended questions. The 19 questions addressed more specific details of teachers' experiences implementing the lesson plan and asked for their opinions on the strengths and weaknesses as well as their recommendations on the program improvement (see Supporting Information: Appendix 1).

Following each semester of formative piloting, all teacher feedback was collated and analyzed qualitatively using thematic analysis. Analysis was conducted using ATLAS.ti 8.4. Results from the analysis were used to inform priorities for revisions of the curriculum and additions to teacher training content.

Two researchers (OP and BS) used an open-coding approach to analyze all written answers on included questions from teacher participants (In total, $n = 1010$). Open coding resulted in a coding scheme that was used to thematically analyze both research questions. The coding scheme was developed and refined through iterative coding sessions. Specifically, each coder independently coded the same portion of the written feedback ($n \sim 50$). An interrater agreement was calculated after each session followed by discussions between the two coders that concluded in full consensus and revision of the scheme. A match between coders was considered when both identified the same category/ies per written answer. Altogether, the two coders met seven times to establish agreement, which resulted in a sufficient interrater agreement (kappa = 0.78; kappa = 0.81, respectively). Finally, when the coding scheme was finalized one of the researchers (BS) coded the remaining data.

All teachers provided informed consent for their data to be used for the purpose of intervention revisions and ToC development. Results from the analysis are explained below in the context of decision making for further intervention development and implementation of On My Mind using the ToC. Development and revisions of lesson plans were led by two authors (AK and LJ) and conducted iteratively after each semester of formative piloting by integrating teachers' and stakeholder feedback.

With teachers being a key resource in the sustainability of universal school-based interventions, we included multiple teacher-focused interventions to the ToC. These included self-care modules in training, and the development of supplemental materials to address barriers in the implementation and evaluation of On My Mind (e.g., protocols for data collection or weekly self-care check-ins). In stakeholder meetings, we discussed the assumption that the revised final intervention adequately addresses the main barriers which arose during piloting (shown in Figure 1: {4}); and discussed the revised curriculum manual and teacher training course plan in stakeholder meetings with the piloting teachers.

We also tested methods to be used in the evaluation phase of the developed curriculum and added interventions to ensure the evaluation of effectiveness would be feasible in terms of data collection, anonymization, and management. For example, we nested data collection within the first and last lesson plans, including pre/postsurvey so that teachers could easily facilitate data collection within the context of the existing educational framework as well as simplifying the coding process for anonymization of independent identifiers for participants. The assumption that the results from the piloting phase would be generalizable to teachers selected in the evaluation phase (shown in Figure 1: {3}) was addressed via stakeholder meetings to gain consensus on whether or not the curriculum and training would improve the capacity of most teachers, regardless of their initial motivation and knowledge. To address stakeholder concerns for generalizability we added interventions across the causal pathway of the ToC to improve this likelihood.

2.2.3 | Stage 3: Evaluation

There is a lack of existing studies using ToC alongside randomized controlled trials (RCTs) to provide robust evidence base for complex interventions (Breuer et al., 2016). Furthermore, there is a dearth of evidence evaluating universally delivered MHL interventions, and to our knowledge none from the region of Central and Eastern Europe. As mental health evidence grows, it will be increasingly important to use quality tools to assess interventions, especially well-conducted cluster RCTs to provide strong evidence for future implementation and to scale it up (Wei et al., 2013). As such, within the development of the ToC map, we designed a cluster RCT to evaluate the effectiveness of the intervention. The research team worked with stakeholders, including the Ministry of Education, Youth and Sports,

and Czech School Inspection (CSI) to collaborate on the randomization and recruitment methodology for schools. Assumptions related to the evaluation phase are illustrated within the ToC map including the concern that Covid-19 related school closures and adapted learning environment would hinder the feasibility of completing the curriculum in a semester (shown in Figure 1—{5}), and the assumption that paralleled work within the national reform of mental health care in Czechia would lead to more service provision and access for adolescents (shown in Figure 1: {6}). To mitigate the potential effects of assumption 5, the RCT intervention was adapted to be delivered over the course of a whole school year, allowing teachers a full year to implement the 20 lessons; and assumption 6 was considered a potential external impact outside of the ceiling of accountability for the ToC.

A multicluster RCT investigating the effectiveness of On My Mind was designed, and resources, contextual barriers, ethical considerations, and facilitating factors for the trial were workshopped within stakeholder meetings. Process interventions were put in place to increase feasibility of the RCT in Czechia. For example, we conducted a systematic review to identify tools available for the assessment of MHL in children and adolescents (Kucera et al., 2023) where we found no existing measures designed for universal populations of young adolescents, therefore we developed a tool to measure this process outcome of interest (Kågström et al., 2023). Additionally, we collaborated with CSI to ensure that any schools being inspected for framework adherence had exemption to deliver On My Mind as an exception in cases where schools were randomized into the intervention arm of the RCT but did not have time to adapt their framework in time to deliver the curriculum within health education.

3 | RESULTS

3.1 | Stage 2 results: Piloting of On My Mind

Thematic analysis yielded 129 open codes grouped into seven categories (Specific activities, Lesson elements, Lesson characteristics, Lesson content, Student behavior, Teacher, and Unexpected circumstances). The categories represented major themes of teachers' feedback (the full coding scheme is in Czech and can be made available by authors upon request). Every code received a positive ("+") or a negative valence ("−") depending on whether teachers expressed their satisfaction, appreciation, or any other laudable statement in their written answer or teacher's comments included concerns, criticism, or difficulties they faced, respectively (see Table 1 for frequencies of themes). Several codes were marked as neutral as they could not be identified as either positive or negative and were simply reflected as aspects intertwined with the program.

In terms of Lesson characteristics (34%), teachers most appreciated the structure, flow, and overall concept of the lessons (66 comments). "[I liked the] structure, alternation of activities, natural yet logical sequence with clear outcomes and reflection." There were relatively few critical statements regarding the flow and logical structure of the lessons (8x). Teachers were content with the balance of direct instruction and hands-on activities (55x). Some teachers consistently noted they had enough instructional time for activities (43x), however, a lack of time was mentioned as a frequent barrier (60x) mostly when paired with a specific activity requiring open sharing and discussion of students' reflections on their integration of the lessons in their daily life (7x).

Another frequent theme during the piloted lessons concerned Student behavior (27%). Teachers frequently reported that students were actively engaged in class activities and followed instructions (91 comments). "Pupils were active, engaged, and laughed. I think they enjoyed it." On the other hand, some lack of involvement was reported as well (32 comments). Most negative comments arose amongst the same teachers with specific groups of students who were unwilling to engage in specific activities, primarily open discussions. Teachers also commented frequently on good understanding (32x), memory of the information from the last lesson (30x), and inattention or lack of concentration among students regarding discussions and specific activities (39x).

Lesson elements (16%) and Specific activities (12%) covered more than a fourth of the comments related to the piloted lessons. Teachers appreciated home experiments where, in which students were assigned to integrate lessons into their daily lives (48 comments)."They [students] were enthusiastic when sharing their

TABLE 1 Wave 1 piloting results: Frequencies of the reported thematic categories that emerged from teacher feedback.

Category	Positive	Negative "−"	Ratio% ±	Frequency (%)
Specific activities	93	45	67%/33%	138 (11.88)
Lesson content	14	0	100%/0%	14 (1.21)
Lesson characteristics	254	145	64%/36%	399 (34.37)
Lesson elements	110	73	60%/40%	183 (15.76)
Student behavior	203	102	64%/32%	317 (27.30)
Teacher	41	28	59%/41%*	69 (5.94)
Unexpected circumstances	5	26	12%/63%*	41 (3.53)

Note: Some codes were neutral (neither positive nor negative), therefore for some categories the ratio % sum does not always add up to 100%.

expectations with each other and therefore motivated one another. They were looking forward to their group conversations and could not wait until they could try the experiment at home." However, in a few classrooms, a large portion of pupils did not do engage and teachers reported the need for interventions to motivate their pupils (12x). According to many teachers, the key lesson takeaways were easy to recognize and understand (39x). In several classes, physicality of piloted activities was problematic (19x) and teachers reported that students were either reluctant or refused to participate in moving exercises. "I didn't think the exercises were interesting enough for them, some didn't practice or do the exercises."

The category Teacher (6%) encompassed comments that referred to personal feelings or experiences associated with delivering instructions; some teachers expressed comfort in delivering the content (40x) while some comments referred to discomfort (13x). Most frequently, teachers requested more explicit directions within the content activities (7x). Comments about Unexpected circumstances (4%) references instances that teachers reported not knowing how to address students' questions (9x). Lesson content (1%) was the least prevalent code; generally, teachers appreciated the topic of emotions in their classes (6x).

Results from the above analysis were synthesized and used to inform lesson plan revisions and content and priorities for the development of the teacher manual and training.

3.2 | Revisions of curriculum following formative piloting

Comments with negative valence were later interpreted as the program aspects requiring revision and targeted intervention in the form of teacher training. On the other hand, the positive valence comments were considered as the program strengths and assets to be magnified. The revision also included process of minimizing the number of activities where students need reading or writing which would allow all students to participate (e.g., students with specific learning disabilities).

Within the code group "specific activities," teachers provided positive feedback for activities which included breathing and calming, and negative feedback for activities exploring their bodies' sensations and emotions in their bodies. Revisions were adapted to either change the lesson plans in response to the negative feedback from teachers, or to strengthen the teacher training aiming to increase teachers' skills and capacities for curriculum components which are vital to SEL and MHL but which piloting teachers struggled to deliver. Breathing exercises were simplified, emphasized and added to both the opening and closing of lessons. Additional training for teachers was added to support comfort and competencies in teaching breathing activities. For lessons on emotions, the proportion of activities involving movement were decreased to gain more balance of frontal and active participation, and introductory content was added on how emotions manifest in the body and brain. Within the code group "lesson content," teachers reported positive experience with the content on emotions; respective revisions included a focus on emotional aspects of communication, mental health, and relationships.

Related to "lesson characteristics," teachers reported positive experiences with the structure, flow, concepts, and the balance of theory versus practice. Negative feedback of this theme revolved around a lack of time to properly implement activities and have meaningful discussions and reflection. Revisions to included decreasing the number of activities in lessons and allowing for more "sharing time" following activities and experiments through the addition of reflection questions. Additionally, guided discussions for other areas which were previously "open discussions" were added as scripts and teacher training was improved to include time management skills. The overall structure of lessons was kept due to overall positive feedback.

Within the code group "lesson elements," teachers reported positive experiences with home experiments and key takeaways, and negative experiences implementing physical activities and engaging some students in discussion. Respective revisions included increased emphasis and prioritization of time to assign and discuss experiments, which were paired with an evidence-based fact and activity, and decreased intensity and focus on physical activities paired with increased teacher training and support for the remaining physical activities which are supported by a strong evidence-base (e.g., breathing).

Within the code group "student behavior," teachers reported that overall, students followed instructions well, were engaged in class activities, understood core concepts, and exhibited the ability to build on learned concepts over the course of the curriculum. Negative aspects of student behavior included a lack of engagement in specific activities, and a lack of concentration and discussion associated with specific activities. Revisions to address student behavior included replacing or improving instructions for activities which lacked engagement, adding prompts for reflection and discussion following activities, and increased training on facilitating open discussion in the classroom.

The code "teacher" reflected that the majority of teachers comfortable teaching content of lessons, however, some requested clearer directions for pupils. Revisions to address teacher-related codes included increased MHL and mental health first aid content in the lessons and training, and more explicit instructions (improved scripts, leading to less "open and flexible" lesson plans). Additionally, we increased teacher training focused on practicing the implementation of activities and added to the manual and teacher training tips and tricks for overcoming implementation barriers. In the code group "unexpected circumstances," teachers felt unprepared and/or underequipped to address students' questions and to fully explain the content of the lesson. Program revisions in response to the unexpected circumstances included increased time devoted to teaching theoretical underpinnings of the core lesson plans and allocated sessions for addressing teachers concerns and questions in teacher training, and increased implementation support in the form of supervisions.

Piloting results were applied to inform specific revisions and amendments to the teacher training and curriculum content which was finalized for evaluation. Throughout the process of content finalization, the priority remained to deliver evidence-based components of the intervention, and when necessary to introduce process interventions to improve the feasibility and acceptability of the curriculum for implementation to address the barriers identified throughout piloting. For example, we simplified breathing activities, to account for the teachers' feedback on the difficulties of such activities and added prompts and more structured outlines and scripts for teachers to follow for activities which focused on nontraditional teaching topics or methods (e.g., breathing, grounding). Additionally, we increased the focus on mental health first aid content within the revised lessons and boosted the teacher training course materials and lectures aimed on improving comfort and confidence in classroom management and assisting help-seeking processes for children with mental health problems. The revisions resulted in the final intervention to be evaluated described as follows.

3.3 | On My Mind intervention: Description of key components

The complex intervention we developed, "On My Mind" (in Czech "Všech Pět Pohromadě"), consists of a curriculum manual with 20 lesson plans, which teacher become accredited to teach. The curriculum covers five main themes: mental health, emotional literacy, relationships, communication, and mental health first aid. The primary intervention theoretical underpinnings are developmentally appropriate MHL (Kagstrom et al., 2023), SEL (CASEL, 2015), and WHO recommendations (2021) for MHL interventions to promote positive mental health and mental well-being. The main curriculum components consist of teaching a holistic model of health (Engel, 1977), effects of stress and its management (Romeo 2013; WHO, 2020), self-regulation techniques (Arch & Craske, 2006; Khng, 2017), sleep hygiene (Zhang et al., 2018), mindfulness (Broderick & Metz 2009; Zelazo & Lyons, 2012; Zenner et al., 2014), gratitude (Gottlieb & Froh 2019; Wilson, 2016), healthy relationships serving as a protective factor for mental well-being and preventative buffer against suicidal ideation and behavior (Lieberman et al., 2014), healthy communication (Bodie et al., 2015; Elias & Tobias 2019; Jalongo 1995; Rogers et al., 2018), self-esteem (Sharaf et al., 2009), and mental health first aid (Bjørnsen et al., 2019; Goodfellow et al., 2022; Mohammadi et al., 2020; Nobre et al., 2021; Ratnayake & Hyde, 2019; Seedaket et al., 2020). All these mental health-related topics are delivered through the basic principles of SEL (CASEL, 2015; Holt, 2019; WHO, 2020).

Teachers implement the program using a structured manual and curriculum which comprised of background theory, practical instructions, and 20 detailed lessons with key takeaways which students record in personal journals. The final teacher training consists of 10 core modules, delivered face-to-face by teacher trainers and a local child and adolescent psychiatrist over 24 h (3 days) to cohorts of teachers (approximately 10 per cohort). The teacher training covers introduction to SEL and MHL theory, mental health in schools, emotional literacy, relationships and communication, mental health first aid, practical pedagogical tips for successful implementation, burnout syndrome, and self-care for teachers.

Teachers face a range of stressors and experience high level of stress and burnout that can impact the students' academic outcomes, and teacher well-being is associated with better student well-being and with lower psychological difficulties (Harding et al., 2019). Learning proactive strategies and self-care is also considered a process intervention for preventing teacher burnout and supporting their mental health (Pyhältö et al., 2021). In addition to the manual and teacher training, supplemental materials were developed for teachers to help them implementing the curriculum (e.g., infographic about hormones; help-seeking resources in implementing regions), and thorough the year, teachers were supervised by teacher trainers through online and in-person meeting and supervisions.

3.4 | ToC map

The final ToC map (Figure 1) reflects the decisions made over the course of 4 years and 64 stakeholder meetings and consultancies. Stakeholders were specifically involved in the following project aspects: drafting project aims and objectives, strategic planning, implementation, piloting of the teacher training and lesson plans, revising of the intervention components, and methodology for monitoring and evaluation. Building stakeholder buy-in, codevelopment of the On My Mind curriculum and teacher training were two themes highlighted in the ToC map, including the development of a complex intervention which is a benefit not only to the primary beneficiaries (adolescents), but also to the teachers. The full causal pathway of the intervention components including process interventions, assumptions, indicators, and rationale are outlined along the causal pathway on the ToC (Figure 1).

3.4.1 | Intervention

Core components of intervention development include establishing and maintaining local collaborations between the National Institute of Mental Health with the Ministry of Health and Education Youth and Sports, CSI, school districts, academics, nongovernmental organizations engaged in the education sector, and community organizations invested in mental health followed by recruitment of primary schools for implementation and evaluation of the intervention via stakeholder meetings (shown as SM in Figure 1). Additionally, awareness raising across various groups, primarily educators, was a process intervention across all phases of the ToC (shown as AR in Figure 1). Along the causal pathway, past assumptions were replaced with process intervention, including ongoing supervisions (shown as SS in Figure 1) for the teachers to provide support, encourage their well-being and increase their confidence and skills important in

implementing the curriculum, and there was a need to provide additional support for the teachers, to track the progress of implementation and to care about their mental well-being via e-mails with self-care tips.

3.4.2 | Assumptions

Our ToC includes several assumptions which are still necessary for outcomes to be achieved or could mitigate the impact of the student outcomes. These include, {1}; integration of On My Mind within the existing educational structure would enhance the feasibility of implementation {2}; that results from the formative development and piloting phases would be generalizable in the context of a randomized sample {3}; that the revised On My Mind program adequately equips teachers with evidence-based practices and training {4}; that implementation was possible even facing unprecedented circumstances, such as Covid-19 {5}; that system level collaboration with service providers will enhance the outcomes related to prevention and promotion interventions {6}; and that evidence of effectiveness will contribute to uptake and scale-up of On My Mind {7}.

3.4.3 | Rationale

The key rationale for the ToC causal pathway to impact was that the intervention would lead to increased MHL across the four components as outlined by Kutcher et al. (2015) and improved mental well-being. This rationale is supported by the current evidence-based for content within the On My Mind curriculum and teacher training materials, which are summarized above in the section entitled "On My Mind intervention: description of key components." As examples, we also included in the ToC map rationale across the causal pathway as they relate to components of the intervention in two forms: Empirical evidence (EE) and Evidence-based methods (EB).

EB include for example that teachers have been shown effective in delivering mental health interventions in classroom (EB1) (Durlak et al., 2011); and developmentally appropriate content for MHL in school-aged children and adolescents (EB2) (Kagstrom et al., 2023). EE methods providing rationale to the ToC design include for example improved success in interventions which involve stakeholder engagement from inception (EE1) (De Silva et al., 2014); and the evidence supporting the effectiveness of self-care and help-seeking in school setting (EB2) (Alexander et al., 2013; Gulliver et al., 2010).

3.4.4 | Indicators

The ToC outlined multiple indicators which are critical across the causal pathway. Process indicators include a SA, multiple fidelity assessment checks (FA), pre/postevaluations (PP) for teachers following training, and for adolescents following implementation of the On My Mind curriculum. Additionally, the cluster RCT will assess outcome measures including MHL literacy and well-being postintervention including mental health-related correlates, anxiety, and depression.

4 | DISCUSSION

This study described the process of applying the ToC to develop, pilot, and evaluate the On My Mind program in Czechia, showing that stakeholder feedback can strengthen the components of an intervention content and application, especially when iterative adjustments are made to the ToC strategically. Our stakeholder workshops enhanced our approach to designing a complex intervention for MHL in schools across all phases of the project.

Some active ingredients in Czechia are consistent with those found globally as key features of effective SEL programs, including: reasonable goals, SAFE (sequenced, active, focused, and explicit) elements, occurring within supportive contexts, building of adult competencies, and targeting key behaviors and skills (Durlak et al., 2010; Jones et al., 2017). Common implementation challenges of SEL program including applying and transferring skills, ensuring sufficient exposure and intensity, prioritizing and integrating SEL in daily practices, extending SEL beyond classrooms, ensuring sufficient staff support and training, facilitating program ownership and buy-in, using data to inform decision-making (Jones et al., 2017). We found similar challenges in implementing MHL interventions to those previously identified in the SEL literature. While SEL and MHL have empirical foundations including an expansive evidence base of active ingredients for successful implementation (CASEL, 2015; Kutcher et al., 2013; Wei et al., 2015) this is the first study to our knowledge which tests MHL within the context of Central and Eastern European educational structures.

A limitation to this study is the relatively small sample which we piloted the curriculum with (15 teachers), which may have implications for the generalizability of the results. This limitation was in part impacted by the COVID-19 pandemic which disrupted all quantitative data collection and more robust qualitative results as implementation halted, and therefore this study only reports qualitative results related to the ToC development. We chose to work intensely with a smaller group of teachers to codevelop the intervention which can result in highly impactful interventions (Alsubaie, 2016; Breuer et al., 2016). Additionally, participating schools and teachers were convenience sampled during the piloting phase. Therefore, they represent a subset of highly rather motivated Czech teachers, which may be reflected in the ToC. However, our approach allowed for a thorough piloting and in-depth qualitative assessment of feasibility and identification of active ingredients of successful implementation in the Czech context. All interpretations and respective revisions were made in consideration to the above-listed limitations.

Although relatively new in its application to public mental health interventions, the use of ToC for the design and evaluation of complex interventions can lead to successful development of

interventions which are catered to local contexts (Breuer et al., 2016; De Silva et al., 2014). We found the process of strategically and meaningfully engaging in an iterative process of intervention design and revisions with stakeholders leading to an intervention which is not only contextually appropriate, but in high demand from stakeholders.

5 | CONCLUSION

The application of ToC to complex interventions in mental health should be more encouraged as this increases stakeholder buy-in. Furthermore, appropriate translation of theory to practice nested within national contexts increases the likelihood of successful implementation resulting in a testable causal pathway for the intended outcomes. Continued monitoring and evaluation of the input, process, output, and outcome indicators will be necessary to strengthen the evidence base for universal MHL interventions in schools in Czechia and the region of Central and Eastern Europe.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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ETHICS STATEMENT

This project was approved by the Ethics Committee of the National Institute of Mental Health, Czech Republic (79/20). All piloting teachers and participants provided an informed consent. Stakeholders were made aware of the purpose of their participation in ToC workshops before participation.

PEER REVIEW

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SUPPORTING INFORMATION

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