

Family-focused intervention to promote adolescent mental health and well-being in Moldova and North Macedonia (FLOURISH): Feasibility study protocol

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ABSTRACT

Introduction

FLOURISH project will adapt, implement, and evaluate a programme to support adolescent mental health and well-being through strategies, such as strengthening parenting practices, adolescent-caregiver relationships, adolescent and parent socioemotional skills, and social support.

Methods and analysis

The project will focus on adolescents aged 10-14 and their caregivers in North Macedonia and Moldova. The countries were selected based on implementation readiness of two organisations and a need for accessible evidence-informed services to help mitigate health risks due to economic, social, and political challenges. Parenting for Lifelong Health (PLH) for Parents and Teens is a family-based programme developed for low-resource settings. PLH has been adapted with input from advisory groups. The programme includes additional components to strengthen impacts on adolescents: adolescent mental health tools, based on UNICEF's Helping Adolescents Thrive, adolescent peer support, and participation booster.

This pilot is first of three study phases. The pilot will be a feasibility testing of the adapted intervention and the assessment and implementation procedures to determine further refinements. The pilot will examine if the adapted programme is acceptable for adolescents, their families, and providers; explore contextual factors relevant to embedding this programme into longer-term scale-up; whether the programme can be delivered with fidelity and participation; whether the participants report changes in adolescent emotional and behaviour problems, well-being, and other outcomes; and whether the study tools are feasible and appropriate. Pre-post adolescent and caregiver questionnaires will provide outcome data. Process evaluation will include attendance and fidelity data, and focus groups. We will examine delivery cost and resource requirements.

Ethics and dissemination

The study was approved at the University of Klagenfurt (Austria), Medical Faculty at St. Cyril and Methodius University (North Macedonia), and National Committee of Ethical Expertise for Clinical Trials (Moldova). Through stakeholder engagement and dissemination, FLOURISH will advance scale-up of open-source family interventions.

Registration details

Trial registration: ID101095528; project page: <https://www.flourish-study.org/about.html>

ARTICLE SUMMARY

Strengths and limitations of this study

- This pilot study is embedded in a project designed to address a gap in evidence-informed programmes to promote adolescent mental health and well-being in North Macedonia and Moldova, at a time when migration, threat of war, and economic challenges exert particular pressures on adolescents and their families.
- The study is adapting an open-access intervention to new contexts, with a focus on scalability, to identify a model for adolescent-parent programmes that can be embedded in long-term delivery to provide a high-quality and accessible services in both countries.
- The pilot evaluation has a relatively small sample size and therefore cannot provide definitive information on the effects of the programme and its components; however, it will provide initial results on the feasibility of the intervention, its implementation and evaluation; effectiveness will be evaluated in further phases with a randomised design.

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INTRODUCTION

Adolescence is a period of transition and transformation, when one can acquire and strengthen factors contributing to lifelong health (1). Mental health problems during early adolescence are a global concern as this is when about half of mental health problems emerge (2). Stressful experiences in early adolescence are more strongly associated with a shorter total life span than such stressors in other phases of childhood, suggesting early adolescence is a sensitive period, making it a crucial time for providing additional support (3).

Having supportive relationships is associated with good health (4). The relationships adolescents have with their parents can remain influential, even as peers become increasingly important. Parents or caregivers are defined broadly to include any caregiver providing significant care to an adolescent, not limited to a biological parent (5). Parenting programmes focusing on the adolescent-caregiver relationships and parenting practices are recommended to support adolescent mental health (6–8). Furthermore, the WHO Guidelines on mental health promotive and preventive interventions for adolescents also recommend interventions for adolescents' interpersonal and emotional regulation skills (9).

A meta-analysis found no significant difference in effectiveness between transported and homegrown parenting interventions for reducing disruptive child behaviour (10). However, culturally adapted parenting interventions, both homegrown and transported, were more effective than non-adapted interventions (11). Adapting interventions can help maintain effectiveness while avoiding the cost of developing new interventions (12). Although majority of adolescents live in low- and middle-income countries (LMICs), research with adolescents in most LMICs is very limited (13), so evidence often has to be adapted from elsewhere.

The Family-Focused Adolescent & Lifelong Health Promotion (FLOURISH) project (2023-2026) is focused on adapting, optimising, and evaluating an intervention package for adolescents aged 10-14 and their caregivers in the Republic of North Macedonia and the Republic of Moldova (henceforth North Macedonia and Moldova). The intervention package aims to support adolescent mental health and well-being through building adolescents' and caregivers' skills, such as problem-solving and emotional regulation, strengthening social support, adolescent-caregiver relationships and communication, and improving parenting practices.

Moldova and North Macedonia were selected based on high risks for adolescent mental health, including adverse childhood experiences and poverty; lack of evidence-informed and accessible provision of prevention programmes for families with adolescents, paired with high levels of implementation readiness in two health networks. North Macedonia and Moldova are middle-income countries, among the poorest in Europe (14). Both have experienced rapid social, political, and economic transformation since 1990s following the fall of Communism.

Studies found high rates of physical punishment, emotional violence and neglect against children in both countries (15–17). Work migration often leads caregivers to spend time away from children, which can hamper communication (5). Young people also face limited work opportunities. Existing challenges were magnified by the coronavirus pandemic (18–20), and the war in Ukraine. There is stigma around help-seeking, particularly regarding mental health and well-being (21). A recent report found that in this region support services

for caregivers of adolescents, such as parenting workshops or support groups, are scarce, and highlighted the need for more such services (5), which our project aims to help address.

This protocol describes the adapted intervention, designed to promote adolescent mental health and well-being in Moldova and North Macedonia, and introduces the FLOURISH feasibility pilot (2023-24), which will inform the next phases of a larger study by providing information for further refinement of the intervention, and its implementation and evaluation procedures.

METHODS

Research questions and frameworks

FLOURISH is shaped by the Multiphase Optimization Strategy (MOST) framework. MOST is designed to optimise an intervention package within the key constraints in three phases – Preparation, Optimization, and Evaluation (22,23). This pilot study corresponds to the Preparation phase, focused on preparing and piloting the intervention and its evaluation. Following the pilot, a factorial trial will be conducted to select the most effective and efficient treatment package (Optimization phase). In the Evaluation phase, the revised programme package will be tested in an implementation-effectiveness randomised controlled trial.

Next, we discuss the research questions and additional frameworks and guidelines used in answering them (see Table 1 for an overview).

1. Is the adapted programme acceptable for adolescents, their caregivers, and staff in North Macedonia and Moldova, and what further adaptation are needed?

Programme materials have been adapted prior to piloting and will be revised throughout the project. FLOURISH draws on ADAPT adaptation guidance, which emphasises improving intervention fit with a new context while preserving key intervention functions (12,24).

2. What contextual factors may influence embedding of the programme into sustainable delivery and funding mechanisms in North Macedonia and Moldova?

FLOURISH is guided by the principle of “beginning with the end in mind” in ExpandNET/ World Health Organization (WHO) guidance (25). We will adapt the programme alongside developing a scaling-up strategy. This includes building capacity for scale-up and making choices to support institutionalization and expansion to more settings.

3. Can the adapted programme be delivered with high fidelity and family participation? The pilot includes a process evaluation, guided by UK MRC process evaluation guidance (26), which focuses on implementation processes, potential mechanisms of impact, and contextual factors. To organise our understanding of the country context, we are using the Context and Implementation of Complex Interventions (CICI) framework (27).

4. What are the changes, if any, reported by the adolescents and caregivers on the primary outcomes of adolescent emotional problems, behaviour problems, and well-being, and on the secondary outcomes for adolescents and caregivers?

Primary programme targets are adolescent mental health and well-being. The pilot study will assess pre-post changes in the intervention outcomes reported by adolescents and their caregivers, following lessons learned in a previous pilot feasibility study, on which this project builds (28,29).

5. Are the study tools and their translations feasible and appropriate?

The pilot will examine the feasibility and preliminary psychometric performance of the outcome measures and their translations. A rigorous translation and evaluation process will be followed. The pilot will provide insights on the feasibility of the procedures and tools, and inform the next phase of the project, including which tools are retained, removed, or modified.

Table 1. Overview of the study design

Data	Participants	Research question	Framework
Advisory group consultations; focus groups	Adolescents, caregivers, staff, and (only for advisory groups) external professionals	1	ADAPT; process evaluation guidelines
Interviews	External professionals	2	CICI; ExpandNet
Attendance registers; observations; focus groups	Staff	3	Process evaluation guidelines
Questionnaires	Adolescents and caregivers	4	MOST
Think-aloud interviews; questionnaires	Adolescents and caregivers	5	N/A

Study sites

The study is conducted in two country-wide health networks, Institute for Marriage, Family and Systemic Practice (ALTERNATIVA) and Health for Youth Association.

ALTERNATIVA is a network of psychologists, social workers, and family therapists in North Macedonia. Health for Youth Association in Moldova is an organisation which supports the activity of publicly funded youth-friendly clinics offering prevention and treatment in youth sexual and reproductive health, mental health, substance use, and violence prevention. Both organisations work with caregivers and adolescents, have delivered Parenting for Lifelong Health (PLH) programs, and participated in evaluations (28).

Study design

Intervention programme

The core programme examined in FLOURISH is PLH for Parents and Teens. It is a group behavioural programme (30,31), based on social learning theory (32). PLH was developed for LMICs in collaboration with UNICEF, WHO, and other international organisations and universities. Programme materials are focused on strengthening psychosocial skills and relationships, and are freely available online: <https://www.who.int/teams/social-determinants-of-health/parenting-for-lifelong-health>.

PLH programmes, primarily for caregivers with young children (aged 2-9), have been evaluated in multiple studies, including completed and ongoing trials in South Africa, Philippines, El Salvador, Lesotho, North Macedonia, Moldova, Romania, Thailand, Uganda, and Zambia. Evaluations reported high levels of engagement by families, practitioners, and other stakeholders. A pilot feasibility study and two large randomised trials in North Macedonia, Moldova, and Romania found improvements in parenting behaviours and child mental health (29,33), and further results are forthcoming (Foran et al.; Heinrichs et al.). PLH

for Parents and Teens (aged 10-17) has been evaluated in South Africa in two pre-post studies and an RCT (552 families, 40 clusters), with an embedded process evaluation (34,35). At 5-9 months after the 14-week intervention, caregivers in the intervention group, but not adolescents, reported lower rates of violence towards their adolescents and corporal punishment, and both caregivers and adolescents reported greater involved parenting and supervision of the adolescent by the caregiver (primary outcomes). There was no intervention effect detected on adolescent depression, suicidality, and externalising behaviour – however, these secondary outcomes were not the focus of the intervention.

Adaptation of the intervention

The adapted programme is drawing on the PLH manual used in the South African evaluation and on other programme versions. The initial adaptations have been informed by the input of advisory groups and expert interviews (described below), team's clinical expertise, and input from the programme developers. The adapted programme will be tested in the pilot (see the initial programme theory in Figure 1, to be revised throughout the project).

To support scalability, the programme was condensed into six group sessions, following on an introductory meeting with the caregiver and adolescent. As in the original model, sessions in FLOURISH will be delivered to a group of 10 adolescent-caregiver pairs. Each two-hour weekly session starts jointly, with a circle share, home activity discussion, agenda overview, physical exercises and games. Next, in the core lesson, a new skill is introduced and practiced, on topics developmentally relevant to adolescence. For the core lesson, the group is often split up into adolescent and caregiver parallel sessions to allow participants to share openly (see Table 2). After discussing the core lesson within the respective peer groups, participants come together and are encouraged to share the summary of their separate discussions in the joint group, and then further discuss lessons learned at home. Participants are given home practice tasks to do between the sessions. For participants who miss a session, facilitators offer a brief catch-up call or meeting. Facilitators and supervisors receive brief training in the programme and facilitation skills. Supervisors are trained in supervision. The programme is delivered by two facilitators per group, coached weekly by supervisors to promote quality of delivery. Given the focus on scalability, staff are not required to have a specific degree.

Table 2. *Adapted intervention structure using PLH material*

Week	Topic	Caregiver & adolescents
Pre-program	Individual meeting or call with facilitators to introduce the programme	Joint
1	Introducing the programme & ground rules. Psychoeducation about transitioning from a child to an adolescent: expectations, norms, and developmental stages	Separate
2	Relationship skills. Building a positive relationship through spending time together & praising each other	Joint
3	Talking about emotions and sensitive topics (sexuality, body changes, and intimate relationships)	Separate
4	Coping with difficult feelings (anger and stress)	Separate
5	Solving problems together as a family. How to communicate and solve problems around disagreements without conflict	Separate
6	Establishing rules and routines	Separate

To strengthen the impacts on adolescent outcomes, the adaptation of the programme involves supplementary components. Three components have been combined with the PLH programme into an intervention package: adolescent mental health tools, adolescent peer support, and adolescent participation booster.

Adolescent mental health tools. To strengthen adolescent mental health, we draw on the Helping Adolescents Thrive toolkit (HAT), designed to promote positive mental health, prevent mental health problems, and reduce engagement in self-harm and risk behaviours (36). This toolkit was developed based on a systematic review of universally delivered psychosocial interventions for adolescents (13), conducted to inform WHO Guidelines (9). The HAT materials will be delivered as six comics chapters, a workbook for adolescents and leaflets for caregivers, including, respectively, tips for adolescents to share their thoughts and feelings with their caregivers and questions caregivers can ask adolescents. The aim of these materials is to support adolescents and caregivers to communicate about adolescent mental health and well-being.

Adolescent peer support. Even brief interventions can foster friendships and social connections (37,38). Since parenting programmes have traditionally focused on parents, they have demonstrated positive impacts on social support experienced by parents but not by adolescents, including in the previous trial of PLH for Parents and Teens (30). The facilitators will pair up adolescents in the group for facilitating peer support and social connection. The PLH programme already includes peer pairings, but its potential effects have not yet been evaluated, so more emphasis will be placed on pairing up adolescents, and this will be tested as a separate component in the Optimization phase.

Adolescent participation booster. Although parenting programmes have been found acceptable in diverse settings, there is incomplete attendance (39–41). While many studies have explored parental attendance for parents of younger children (29), there is limited research on enhancing engagement of adolescents and their caregivers as programmes rarely included adolescents. The South African trial found 50-64% session attendance (42). We will investigate whether an adolescent participation booster promotes attendance.

Patient and public involvement

Members of the public were involved in the design of this research. In particular, intervention adaptations have been informed by advisory group consultations conducted in May-July 2023, as described below.

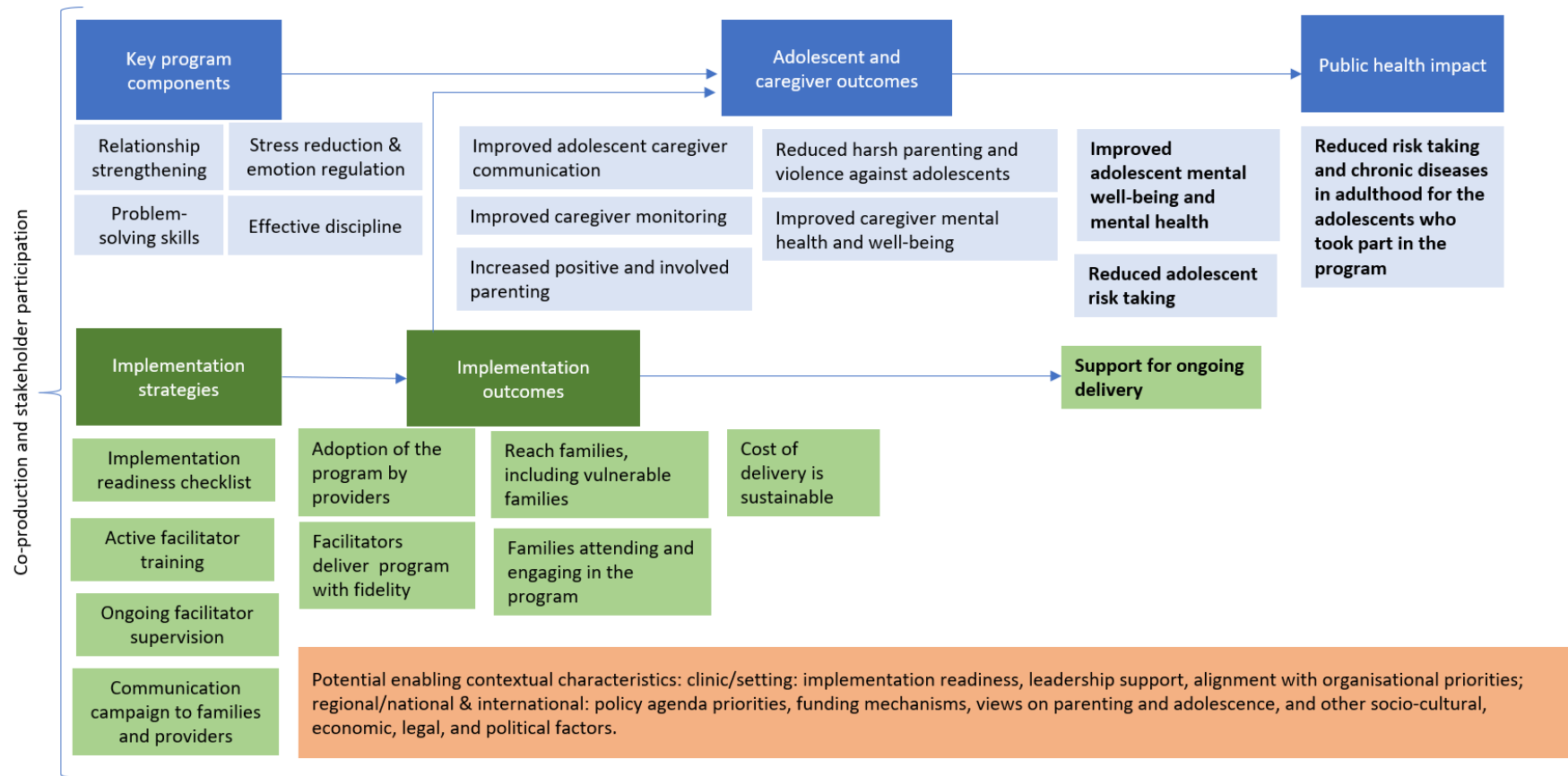
Advisory groups. Advisory groups of adolescents, caregivers, implementation organisation staff, and other professional experts (6-8 people per group) were formed in North Macedonia and Moldova to advise on programme adaptations and the study findings. Consultations will continue throughout the study, with key discussion points captured by a note-taker. Adolescents are eligible if they are aged 10-14 when joining the advisory group and provide adolescent assent and caregiver consent. For caregivers, staff, and other professionals, members need to be 18 or older and provide consent. For the caregiver advisory group, participants need to be caregivers of adolescents aged 10-17 (extended age range to facilitate recruitment). The groups aim to include individuals with experience of PLH or other family programmes and individuals who represent diverse perspectives (e.g., male and female caregivers, ethnic minorities). Implementation staff groups consist of ALTERNATIVA and Health for Youth Association staff. External professional experts include representatives from Ministries of Health, social services, youth, universities, research organisations, healthcare financing agencies, local NGOs, community, and international organisations implementing programmes for young people.

Advisory group analysis. Summary notes were combined into a matrix, using thematic framework and content analysis (43,44). We examined similarities and differences within and between stakeholder groups and countries. Advisory group participants received a summary for feedback as a means of validation.

Expert interviews. In addition, in each country, ten semi-structured audio-recorded interviews with professional experts took place to map the contextual facilitators, and barriers to scaling up a programme package prepared by the FLOURISH project. We drew on recommendations for qualitative sample sizes (45,46).

Interview analysis. We are using thematic and framework analysis for the transcripts. The CICI framework provides initial coding domains, with country-specific domains generated from the data. The analysis is conducted in two stages – first, a rapid synthesis to inform the intervention adaptations for the pilot (completed); second, a detailed analysis, generating a conceptual map of key contextual factors, presented as a narrative summary (ongoing).

Figure 1. Initial programme theory



Piloting of the intervention

The pilot (October 2023-January 2024) will test the adapted intervention in a pre-post uncontrolled study with an outcome and process evaluation, described below.

Participants and recruitment. The pilot will include three intervention groups per country, so the target sample size is 60 adolescents and 60 caregivers (60 dyads). Recruitment will involve disseminating information through online and print materials, word-of-mouth, and via the existing clients of each network. At least one caregiver and adolescent per family will participate in the study. Inclusion criteria for caregivers are age 18 or older at baseline assessment; primary caregiver responsible for the care of an adolescent 10-14, resident in the same household at least four nights a week in the previous month; able to speak one of the local languages, in which the programme will be offered; agreement to participate in the programme; provision of consent for self and adolescent to participate in the study. Inclusion criteria for adolescents: age 10-14 at baseline assessment; assent to participate; caregiver consent.

The caregiver can be any adult who is primarily responsible for looking after the adolescent and available to participate. In cases where there is more than one caregiver who is available, they will need to agree who will be the primary and secondary participant. Similarly, if two adolescents in the same age range in a family would like to join, both can join. Everyone who joins the study, both primary and secondary participants, will be invited to complete assessments.

Taking a proportionate universalism approach (47), all families will be eligible, but we will make greater efforts to include more vulnerable groups. We conceptualise our approach as selected prevention, targeted to individuals whose risk is above average, without screening (48). FLOURISH has no exclusion criteria. While introducing the project, the researchers will guide the participants through a consent form that asks whether they are currently experiencing acute distress, or a mental or physical health condition that would interfere with participation. The judgement will be made by the potential participants. If they decide they are not able to take part, the research team will follow up and provide referrals for other services (see also Ethics section).

To deliver the programme, facilitators and supervisors will be recruited from existing staff and networks of the implementing organisations. Inclusion criteria for facilitators are age 18 or older; participation in training; agreement to deliver the programme; provision of study consent. For supervisors: age 18 or older; participation in training; agreement to provide supervision; provision of consent.

Pre-post outcomes. Outcome data collection with families will be done primarily using computer-assisted self-interviewing questionnaires on tablets. Trained assessors will check participant eligibility as part of the informed consent procedure and assist adolescents and caregivers with completing the questionnaires. See Table 3 for the primary outcome measures and Table 1s (supplementary) for secondary outcome measures and Table 2s for other measures (pre-registered in clinical trials registry; ID101095528).

Outcome measures without available official translations will be adapted and translated following best practices (49). First, a cultural evaluation (relevance, appropriateness) of each item and forward-translation will be conducted by a professional with mental health experience. Second, a back-translation to English will be carried out by another translator. Third, an additional translator will compare the translations and assess correspondence between semantic equivalence and words, highlighting any discrepancies. A final translation will be produced in a meeting between the translators. All translators will be bilingual.

Think-aloud interviews will be conducted for the primary outcome measures that have not been previously used with adolescents or in the study countries (RCADS, WHO-5), and

for the health economic measures that will be used in the Optimization and Evaluation phases – EQ-5D-5L (50), EQ-5D-Y (51), OxCAP-MH (52,53), PECUNIA RUM (54). Think-aloud interviews will be conducted after post-test assessments and explore item comprehension (10 interviews per country with adolescents and caregivers in Romanian and Macedonian).

Table 3. Primary Outcomes

Construct	Respondent	Measure
Adolescent emotional problems	Adolescent	- The Revised Child Anxiety and Depression Scales (RCADS), anxiety and depression subscales (55–57) - Child Behaviour Checklist 6-18, internalising subscale (58) - Youth Self-Report 11-18, internalising subscale (58)
Adolescent behaviour problems	Adolescent Caregivers	Youth Self-Report, rule-breaking and aggressive behaviour Child Behaviour Checklist, rule-breaking and aggressive behaviour
Adolescent well-being	Adolescent	World Health Organization-Five Well-Being Index (WHO-5) (59,60)

Pre-post outcomes analysis. We will examine descriptive and preliminary psychometric statistics, such as internal consistencies. Intent-to-treat analyses will examine pre-post changes in adolescent and caregiver outcomes. We hypothesise that adolescent emotional problems and adolescent behaviour problems, both in self- and caregiver report, will be significantly reduced at the post-assessment; adolescent well-being will be significantly increased at the post-assessment, with medium to large effect sizes (Cohen’s $d = > .5$). We also will examine pre-post change in secondary outcomes and hypothesise small to medium effect sizes. Missing data will be addressed using full information maximum likelihood or multiple imputation methods.

Process evaluation. Facilitators will collect weekly attendance registers. Programme supervisors will conduct fidelity assessments. One session per facilitator will be observed live or video-recorded and assessed using the recording with the Facilitator Assessment Tool (61). Facilitators and supervisors will complete questionnaires to provide information on demographics and previous experience, and to collect pre-post data on staff well-being and parenting stress (for staff who are caregivers). The sample sizes are determined by the delivery model and the number of families in the intervention study.

Process evaluation analysis. We will use descriptive statistics, summarizing enrolment, attendance, fidelity, and facilitator characteristics. We will check variation in attendance by participant baseline characteristics (e.g., gender) and by intervention delivery characteristics (e.g., study site) to surface any emerging inequalities. We will explore whether attendance varied across sessions. We will explore staff responses to the pre-post well-being questionnaires using descriptives and paired t-tests. This will help inform, for example, whether additional support is needed if staff well-being had reduced.

Intervention costs. Facilitators and supervisors will complete questionnaires to capture the time and other resources spent preparing for, delivering, and following up on intervention activities. They will complete one form for the initial training and weekly forms designed to separate the resources required for the intervention versus the study.

Costs analysis. We will assess if weekly surveys are feasible. We will conduct descriptive analyses, summarizing information on time, money, and other resources used. Resource use information will be costed with country-specific unit costs collected primarily for the study to provide overall cost data. Cost information will be used to inform scale-up planning, and, in later phases, for programme cost-effectiveness analyses.

Focus groups. To inform further programme adaptations and answer process evaluation questions about the context, how the programme was implemented, and its mechanisms of change, we will conduct participant focus groups. A sub-sample of the adolescents, caregivers, and intervention staff will be recruited to participate in post-program audio-recorded focus groups (6-8 people/group, minimum 3 groups/country). We will aim to select participants with diverse backgrounds and experiences.

Focus group analysis. Focus group transcripts will be analysed using thematic and framework analysis, with codes developed both based on the initial questions and unexpected insights.

ETHICS AND DISSEMINATION

An ethical self-assessment for Horizon Europe was reviewed by the European Commission, and the project was cleared for ethics. The study was approved by the Institutional Review Board for Research Ethics at the University of Klagenfurt, Austria (coordinating site), the Ethical Commission for Human Research at the Medical Faculty at St. Cyril and Methodius University, North Macedonia, and National Committee of Ethical Expertise for Clinical Trials of the Ministry of Health, Moldova.

Participants will provide written assent (adolescents) or consent (adults). Adolescents and caregivers will receive reimbursements for transport costs, and thank-you vouchers for data collection activities, worth ~ €10. All staff will be trained to identify and handle potential distress in participants with detailed safety procedures and referral processes. Adverse event monitoring will help detect any potential harm caused by the research or the intervention. Any serious adverse events will be investigated and reported to the ethics committees and the data and safety monitoring board to consider potential changes in the project.

The FLOURISH project emphasises dissemination to stakeholders. Dissemination will include meetings, communication with media, and through print and online channels, including existing networks, FLOURISH website and social media. The focus of dissemination is Moldova and North Macedonia, and we will also be engaging stakeholders in the Eastern Europe region, working with family and adolescent health associations, NGOs, government, and international agencies.

This pilot will provide insights on the feasibility of the intervention, its implementation and evaluation, and thus inform the factorial trial planned as the next research phase, guiding which changes need to be made to the intervention, implementation, and evaluation procedures. More broadly, this project will provide insights on how best to adapt and scale up a programme targeting family relationships and adolescent mental health at a time when economic problems, interpersonal and intergroup conflict, the threat of a wider war, and other issues contribute to increased stress for both adolescents and adults. We will draw on a set of frameworks and global health best practices (62), such as using open-access interventions that involve stakeholders in all stages of intervention adaptation and evaluation.

REFERENCES

1. Ross DA, Hinton R, Melles-Brewer M, Engel D, Zeck W, Fagan L, et al. Adolescent Well-Being: A Definition and Conceptual Framework. *Journal of Adolescent Health* [Internet]. 2020;67(4):472–6. Available from: <https://doi.org/10.1016/j.jadohealth.2020.06.042>
2. Rice F, Sellers R, Hammerton G, Eyre O, Bevan-Jones R, Thapar AK, et al. Antecedents of new-onset major depressive disorder in children and adolescents at high familial risk. *JAMA Psychiatry*. 2017;74(2):153–60.
3. Falconi A, Gemmill A, Dahl RE, Catalano R. Adolescent experience predicts longevity: Evidence from historical epidemiology. *Journal of Developmental Origins of Health and Disease*. 2014;5(3):171–7.
4. Holt-Lunstad J. Why Social Relationships Are Important for Physical Health: A Systems Approach to Understanding and Modifying Risk and Protection. *Annual Review of Psychology*. 2018;69:437–58.
5. UNICEF. Parenting adolescents. A Regional Study on Parenting Adolescents and Parenting Support Programmes in Belarus, Bulgaria, Georgia, Moldova, Montenegro and Romania. 2018.
6. Pedersen GA, Smallegange E, Coetzee A, Hartog K, Turner J, Jordans MJD, et al. A Systematic Review of the Evidence for Family and Parenting Interventions in Low- and Middle-Income Countries: Child and Youth Mental Health Outcomes. *Journal of Child and Family Studies*. 2019;28(8):2036–55.
7. UNICEF. Programming guidance for parenting of adolescents [Internet]. 2021. Available from: <https://www.unicef.org/reports/parenting-adolescents>
8. Butchart A. WHO Guideline on parenting to prevent child maltreatment and promote positive development in children aged 0-17 years. 2020. 1–37 p.
9. WHO. Guidelines on mental health promotive and preventive interventions for adolescents. 2020;1–120. Available from: <https://www.who.int/publications/i/item/9789240011854>
10. Leijten P, Melendez-Torres GJ, Knerr W, Gardner F. Transported versus homegrown parenting interventions for reducing disruptive child behavior: A multilevel meta-regression study. *Journal of the American Academy of Child and Adolescent Psychiatry* [Internet]. 2016;55(7):610–7. Available from: <http://dx.doi.org/10.1016/j.jaac.2016.05.003>
11. Gardner F, Montgomery P, Knerr W. Transporting evidence-based parenting programs for child problem behavior (age 3–10) between countries: Systematic review and meta-analysis. *Journal of Clinical Child & Adolescent Psychology* [Internet]. 2015;45:749–62. Available from: <http://dx.doi.org/10.1080/15374416.2015.1015134>
12. Moore G, Campbell M, Copeland L, Craig P, Movsisyan A, Hoddinott P, et al. Adapting interventions to new contexts-the ADAPT guidance. *The BMJ*. 2021;374(fig 1).
13. Skeen S, Laurenzi CA, Gordon SL, Du Toit S, Tomlinson M, Dua T, et al. Adolescent mental health program components and behavior risk reduction: A Meta-analysis. *Pediatrics*. 2019;144(2).
14. World Bank. DataBank world development indicators. [Internet]. 2022. Available from: <https://databank.worldbank.org/source/world-development-indicators>
15. Sebre S, Sprugevica I, Novotni A, Bonevski D, Pakalniskiene V, Popescu D, et al. Cross-cultural comparisons of child-reported emotional and physical abuse: Rates, risk factors and psychosocial symptoms. *Child Abuse and Neglect*. 2004;28(1):113–27.
16. WHO. Survey of adverse childhood experiences in the former Yugoslav Republic of

- Macedonia [Internet]. 2013. Available from: <https://www.euro.who.int/en/countries/north-macedonia/publications/more-publications/publications-archive/survey-of-adverse-childhood-experiences-in-the-former-yugoslav-republic-of-macedonia>
17. WHO. Adverse childhood experiences and associated health-risk behaviours in university students from the Republic of Moldova [Internet]. 2018. Available from: <https://www.euro.who.int/en/countries/republic-of-moldova/publications/adverse-childhood-experiences-and-associated-health-risk-behaviours-in-university-students-from-the-republic-of-moldova-2018>
 18. Bhatia A, Fabbri C, Cerna-Turoff I, Tanton C, Knight L, Turner E, et al. COVID-19 response measures and violence against children. *Bulletin of the World Health Organization*. 2020;98(9):583-583A.
 19. Bhatia A, Fabbri C, Cerna-Turoff I, Turner E, Lokot M, Warri A, et al. Violence against children during the COVID-19 pandemic. *Bulletin of the World Health Organization* [Internet]. 2021 Oct 1;99(10):730–8. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8477433/pdf/BLT.20.283051.pdf>
 20. Katz I, Katz C, Andresen S, Bérubé A, Collin-Vezina D, Fallon B, et al. Child maltreatment reports and child protection service responses during COVID-19: Knowledge exchange among Australia, Brazil, Canada, Colombia, Germany, Israel, and South Africa. *Child Abuse and Neglect* [Internet]. 2021 Jun;116(August 2020):105078. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0145213421001514>
 21. Dlouhy M. Mental health policy in Eastern Europe: A comparative analysis of seven mental health systems. *BMC Health Services Research*. 2014;14.
 22. Collins LM. Optimization of Behavioral, Biobehavioral, and Biomedical Interventions [Internet]. Cham: Springer International Publishing; 2018. (Statistics for Social and Behavioral Sciences; vol. 22). Available from: <http://link.springer.com/10.1007/978-3-319-72206-1>
 23. Guastafarro K, Collins LM. Optimization Methods and Implementation Science: An Opportunity for Behavioral and Biobehavioral Interventions. *Implementation Research and Practice*. 2021;2:263348952110543.
 24. Evans RE, Moore G, Movsisyan A, Rehfuess E. How can we adapt complex population health interventions for new contexts? Progressing debates and research priorities. *Journal of Epidemiology and Community Health*. 2021;75(1):40–5.
 25. Ghiron L, Ramirez-Ferrero E, Badiani R, Benevides R, Ntabona A, Fajans P, et al. Promoting Scale-Up Across a Global Project Platform: Lessons from the Evidence to Action Project. *Global Implementation Research and Applications* [Internet]. 2021;1(2):69–76. Available from: <https://doi.org/10.1007/s43477-021-00013-4>
 26. Moore G, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. *British Medical Journal* [Internet]. 2015;350:h1258. Available from: <http://www.bmj.com/cgi/doi/10.1136/bmj.h1258>
 27. Pfadenhauer LM, Gerhardus A, Mozygemba K, Lysdahl KB, Booth A, Hofmann B, et al. Making sense of complexity in context and implementation: The Context and Implementation of Complex Interventions (CICI) framework. *Implementation Science*. 2017;12(1):1–17.
 28. Frantz I, Foran HM, Lachman JM, Jansen E, Hutchings J, Băban A, et al. Prevention of child mental health problems in Southeastern Europe: A multicentre sequential study to adapt, optimise and test the parenting programme “Parenting for Lifelong Health for Young Children”, protocol for stage 1, the feasibility study. *BMJ Open*.

- 2019;9(1).
29. Jansen E, Frantz I, Hutchings J, Lachman J, Williams M, Taut D, et al. Preventing child mental health problems in southeastern Europe: Feasibility study (phase 1 of MOST framework). *Family Process*. 2021;(August 2020):1–18.
 30. Cluver LD, Meinck F, Steinert JI, Shenderovich Y, Doubt J, Herrero Romero R, et al. Parenting for Lifelong Health: a pragmatic cluster randomised controlled trial of a non-commercialised parenting programme for adolescents and their families in South Africa. *BMJ Global Health* [Internet]. 2018 Jan;3(1):e000539. Available from: <http://>
 31. Lachman JM, Martin M, Booij A, Tsoanyane S, Majenga N. *Parenting for Lifelong Health for Teens: Facilitator Assessment Tool Manual*. Cape Town; 2019.
 32. Bandura A. *Social learning theory*. New York: General Learning Press; 1977.
 33. Lachman J, Heinrichs N, Jansen E, Brühl A, Taut D, Fang X, et al. Preventing child mental health problems through parenting interventions in Southeastern Europe (RISE): Protocol for a multi-country cluster randomized factorial study. *Contemporary Clinical Trials* [Internet]. 2019;86:105855. Available from: <https://doi.org/10.1016/j.cct.2019.105855>
 34. Cluver LD, Meinck F, Steinert JI, Shenderovich Y, Doubt J, Herrero Romero R, et al. Parenting for Lifelong Health: A pragmatic cluster randomised controlled trial of a non-commercialised parenting programme for adolescents and their families in South Africa. *BMJ Global Health* [Internet]. 2018 Jan;3(1):e000539. Available from: <http://>
 35. Shenderovich Y, Eisner M, Cluver L, Doubt J, Berezin M, Majokweni S, et al. Delivering a Parenting Program in South Africa: The Impact of Implementation on Outcomes. *Journal of Child and Family Studies* [Internet]. 2019 Feb;28(4). Available from: <https://doi.org/10.1007/s10826-018-01319-y>
 36. UNICEF. HIV and AIDS in adolescents [Internet]. 2021 [cited 2021 Jul 15]. Available from: <https://data.unicef.org/topic/adolescents/hiv-aids/>
 37. Echols L, Ivanich J. From “Fast Friends” to True Friends: Can a Contact Intervention Promote Friendships in Middle School? *Journal of Research on Adolescence*. 2021;31(4):1152–71.
 38. Veenstra R, Laninga-Wijnen L. Peer network studies and interventions in adolescence. *Current Opinion in Psychology* [Internet]. 2022;44:157–63. Available from: <https://doi.org/10.1016/j.copsyc.2021.09.015>
 39. Butler AM, Titus C. Systematic Review of Engagement in Culturally Adapted Parent Training for Disruptive Behavior. *Journal of Early Intervention*. 2015;37(4):300–18.
 40. Chacko A, Jensen SA, Lowry LS, Cornwell M, Chimklis A, Chan E, et al. Engagement in behavioral parent training: Review of the literature and implications for practice. *Clinical Child and Family Psychology Review*. 2016;19(3):204–15.
 41. Gonzalez C, Morawska A, Haslam DM. Enhancing Initial Parental Engagement in Interventions for Parents of Young Children: A Systematic Review of Experimental Studies. *Clinical Child and Family Psychology Review* [Internet]. 2018;21(3):415–32. Available from: <https://doi.org/10.1007/s10567-018-0259-4>
 42. Shenderovich Y, Eisner M, Cluver L, Doubt J, Berezin MK, Majokweni S, et al. What affects attendance and engagement in a parenting program in South Africa? *Prevention Science*. 2018;19(7):977–86.
 43. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology* [Internet]. 2013 Dec 18;13(1):117. Available from: <https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-13-117>
 44. Heath G, Cameron E, Cummins C, Greenfield S, Pattison H, Kelly D, et al. Paediatric “care closer to home”: Stakeholder views and barriers to implementation. *Health and*

- Place [Internet]. 2012;18(5):1068–73. Available from: <http://dx.doi.org/10.1016/j.healthplace.2012.05.003>
45. Hennink M, Kaiser BN. Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science and Medicine* [Internet]. 2022;292:114523. Available from: <https://doi.org/10.1016/j.socscimed.2021.114523>
 46. Krueger RA. *Focus groups: A practical guide for applied research*. Sage publications; 2014.
 47. Segrott J, Gillespie D, Lau M, Holliday J, Murphy S, Foxcroft D, et al. Effectiveness of the Strengthening Families Programme in the UK at preventing substance misuse in 10–14 year-olds: a pragmatic randomised controlled trial. *BMJ Open*. 2022;12(2):e049647.
 48. National Research Council and Institute of Medicine. *Preventing Mental, Emotional, and Behavioral Disorders Among Young People* [Internet]. Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities. Washington, D.C.: National Academies Press; 2009. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK32789/>
 49. Reichenheim M, Bastos JL. What, what for and how? Developing measurement instruments in epidemiology. *Rev Saude Publica* [Internet]. 2021 Aug 9;55:40. Available from: <https://www.revistas.usp.br/rsp/article/view/189335>
 50. Herdman M, Gudex C, Lloyd A, Janssen M, Kind P, Parkin D, et al. Development and preliminary testing of the new five-level version of EQ-5D (EQ-5D-5L). *Quality of Life Research* [Internet]. 2011 Dec 9;20(10):1727–36. Available from: <http://link.springer.com/10.1007/s11136-011-9903-x>
 51. Wille N, Badia X, Bonsel G, Burström K, Cavrini G, Devlin N, et al. Development of the EQ-5D-Y: a child-friendly version of the EQ-5D. *Quality of Life Research* [Internet]. 2010 Aug 20;19(6):875–86. Available from: <http://link.springer.com/10.1007/s11136-010-9648-y>
 52. Vergunst F, Jenkinson C, Burns T, Anand P, Gray A, Rugkåsa J, et al. Psychometric validation of a multi-dimensional capability instrument for outcome measurement in mental health research (OxCAP-MH). *Health and Quality of Life Outcomes* [Internet]. 2017 Dec 28;15(1):250. Available from: <https://hqlo.biomedcentral.com/articles/10.1186/s12955-017-0825-3>
 53. Simon J, Łaszewska A, Leutner E, Spiel G, Churchman D, Mayer S. Cultural and linguistic transferability of the multi-dimensional OxCAP-MH capability instrument for outcome measurement in mental health: the German language version. *BMC Psychiatry* [Internet]. 2018 Dec 5;18(1):173. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-018-1762-3>
 54. Pokhilenko I, Janssen LMM, Paulus ATG, Drost RMWA, Hollingworth W, Thorn JC, et al. Development of an Instrument for the Assessment of Health-Related Multi-sectoral Resource Use in Europe: The PECUNIA RUM. *Applied Health Economics and Health Policy* [Internet]. 2023 Mar 9;21(2):155–66. Available from: <https://link.springer.com/10.1007/s40258-022-00780-7>
 55. Ebesutani C, Reise SP, Chorpita BF, Ale C, Regan J, Young J, et al. The Revised Child Anxiety and Depression Scale-Short Version: Scale reduction via exploratory bifactor modeling of the broad anxiety factor. *Psychological Assessment* [Internet]. 2012;24(4):833–45. Available from: <http://doi.apa.org/getdoi.cfm?doi=10.1037/a0027283>
 56. Krause K, Midgley N, Edbrooke-Childs J, Wolpert M. A comprehensive mapping of outcomes following psychotherapy for adolescent depression: The perspectives of young people, their parents and therapists. *European Child and Adolescent Psychiatry*

- [Internet]. 2021;30(11):1779–91. Available from: <https://doi.org/10.1007/s00787-020-01648-8>
57. Krause KR, Chung S, Adewuya AO, Albano AM, Babins-Wagner R, Birkinshaw L, et al. International consensus on a standard set of outcome measures for child and youth anxiety, depression, obsessive-compulsive disorder, and post-traumatic stress disorder. *The Lancet Psychiatry* [Internet]. 2021 Jan;8(1):76–86. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2215036620303564>
 58. Achenbach TM, Rescorla L. *The Manual for the ASEBA School-Age Forms & Profiles*. Burlington; 2001.
 59. Topp CW, Østergaard SD, Søndergaard S, Bech P. The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychotherapy and Psychosomatics* [Internet]. 2015;84(3):167–76. Available from: <https://www.karger.com/Article/FullText/376585>
 60. WHO. *Wellbeing Measures in Primary Health Care/The Depcare Project*. Copenhagen; 1998.
 61. Martin M, Lachman JM, Murphy H, Gardner F, Foran H. The development, reliability, and validity of the Facilitator Assessment Tool: An implementation fidelity measure used in Parenting for Lifelong Health for Young Children. *Child: Care, Health and Development*. 2023;49(3):591–604.
 62. Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. *The Lancet*. 2018;392(10157):1553–98.

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Author statement

HMF and YS led the preparation of the grant proposal and the design of the study. NC, RE, HMF, NC, NH, GL, GM, MR, JS, BS and YS, are PIs on the study and contributed to the conception and implementation of the study, including data collection. AB, VB, SG-K, JM, AP, DW, FW are co-Is and contributed to the conception and implementation of the study, including data collection. NH has been leading the adaptation of the intervention programme, with support from team members, in particular VB, AB, SG-K and MR. MR and SG-K have designed and delivered training in the intervention programme. HMF, NH, JM, AP, YS, FW have designed and delivered training in data collection and safety monitoring. HMF, JM, AP, and FW are key contributors to the design of the adolescent and caregiver data collection, analysis, and management, and oversee the project data management and ethical processes. RE, GM, YS are key contributors to the design of the process evaluation and advisory group data collection, analysis, and management. JS and DW designed the health economic analysis, oversaw the relevant toolkit development, assessment, analysis and cultural adaptation, and collaborated in the intervention cost evaluation. HMF is the study Coordinator. All authors have revised the manuscript, have approved the final version of the manuscript to be published, and have agreed to be accountable for all aspects of the work.

Data sharing statement

The project will make some anonymized quantitative datasets available via an open-access repository following the FAIR (Findable, Accessible, Interoperable, Reusable) principles. The research team will ensure that results will be published in open access peer-reviewed publications or are made available in other ways, such as through pre-prints. Contact heather.foran@aau.at for queries related to overall data management plan and access. The research team will ensure that results will be published in open access peer-reviewed publications or are made available in other ways, such as through pre-prints.

Competing interests (conflicts of interest)

VB, HMF, NH, SG-K, GL, JM, MR, AP, YS, FW report participating in other research studies involving the PLH programme as investigators and team members. NH reports personal fees from academic institutions offering continued education for psychotherapy education in Germany, outside the submitted work; and NH has attended trainings in Triple P and PCIT. YS was involved in the South African trial, which is the previous large-scale evaluation of the PLH for Parents and Teens. HMF, NH, GL, and MR were principal investigators on the previous Horizon European project, RISE, evaluating the PLH for Young Children in Moldova and North Macedonia. JS is developer of the OxCAP-MH and PECUNIA RUM instruments. DW has no competing interest to declare.

Supplementary materials

Table 1s Secondary outcome measures

Construct	Respondent	Measure
Communication	Adolescents & parents	Child-Parent Communication Apprehension scale, total score (1)
		Family Assessment Device-FAD, general functioning subscale (2)
Involved parenting	Adolescents & parents	Alabama Parenting Questionnaire (3), involved parenting and parental supervision/monitoring subscales.
Harsh parenting	Parents	Alabama Parenting Questionnaire (3), corporal punishment subscale.
Adolescent emotional problems	Adolescents	The Revised Child Anxiety and Depression Scales (RCADS), total score (4–6)
Adolescent behavior problems	Parents	Child Behavior Checklist 6-18, externalizing behavior (7)
Loneliness	Adolescents	UCLA-8 Loneliness scale, total score (8)
	Parents	Revised UCLA-6 Loneliness scale, total score (9)
Social support	Adolescents & parents	Medical Outcome Study Social Support Survey, emotional and affectionate sub-scales (10)
Parents wellbeing	Parents	WHO-5 Well-Being Index, total score (WHO-5) (11,12)
Parents psychological distress	Parents	The Patient Health Questionnaire – 9 (PHQ-9) , total score (13).
Parental stress	Parents	Parental Stress Scale, total score (14).

Table 2s. Other measures

Construct	Respondent	Measure
Enrolment		Percentage of participants who joined the study and have attended at least one group PLH session (individually for adolescents and caregivers, for both jointly at the dyad/family level)
Attendance	Facilitators	Percentage of group PLH sessions attended out of 6 (individually for adolescents and caregivers, for both jointly at the dyad/family level)
		Percentage of catch-up PLH contact out of 6 (individually for adolescents and caregivers)
Adolescent healthy weight	Adolescents & parents	Body mass index (not expected to change but assessed for sample description).
Alcohol use	Parents	The Alcohol Use Disorder Identification Test (15).
Posttraumatic stress	Parents	PTSD checklist for DSM-5 (PCL-5), short form, total score
	Adolescent	Children's Revised Impact of Event Scale (16), total score and subscales
Sexual risk behaviors	Adolescents	Health Behavior in School-aged Children Study Sexual health scale, total score (17).
Adolescent-defined problems	Adolescent	The Top Problem Assessment (18–20).
Demographics	Adolescent & parents	Parent and adolescent age, gender, education, economic status.

REFERENCES

1. Lucchetti AE, Powers WG, Love DE. The Empirical Development of the Child-Parent Communication Apprehension Scale for Use With Young Adults. *Journal of Family Communication* [Internet]. 2002 Jul;2(3):109–31. Available from: http://www.tandfonline.com/doi/abs/10.1207/S15327698JFC0203_1
2. Epstein NB, Baldwin LM, Bishop DS. The McMaster family assessment device. *Journal of Marital and Family Therapy* [Internet]. 1983 Apr;9(2):171–80. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/j.1752-0606.1983.tb01497.x>
3. Frick PJ. Alabama Parenting Questionnaire. Unpublished rating scale, University of Alabama. 1991;
4. Chorpita BF, Moffitt CE, Gray J. Psychometric properties of the Revised Child Anxiety and Depression Scale in a clinical sample. *Behaviour Research and Therapy* [Internet]. 2005 Mar;43(3):309–22. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0005796704000695>
5. Krause K, Midgley N, Edbrooke-Childs J, Wolpert M. A comprehensive mapping of outcomes following psychotherapy for adolescent depression: The perspectives of young people, their parents and therapists. *European Child and Adolescent Psychiatry* [Internet]. 2021;30(11):1779–91. Available from: <https://doi.org/10.1007/s00787-020-01648-8>
6. Krause KR, Chung S, Adewuya AO, Albano AM, Babins-Wagner R, Birkinshaw L, et al. International consensus on a standard set of outcome measures for child and youth anxiety, depression, obsessive-compulsive disorder, and post-traumatic stress disorder. *The Lancet Psychiatry* [Internet]. 2021 Jan;8(1):76–86. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2215036620303564>
7. Achenbach TM, Rescorla L. *The Manual for the ASEBA School-Age Forms & Profiles*. Burlington; 2001.
8. Roberts RE, Lewinsohn PM, Seeley JR. A Brief Measure of Loneliness Suitable for Use with Adolescents. *Psychological Reports* [Internet]. 1993 Jun;72(3_suppl):1379–91. Available from: <http://journals.sagepub.com/doi/10.2466/pr0.1993.72.3c.1379>
9. Wongpakaran N, Wongpakaran T, Pinyopornpanish M, Simcharoen S, Suradom C, Varnado P, et al. Development and validation of a 6-item Revised UCLA Loneliness Scale (RULS-6) using Rasch analysis. *British Journal of Health Psychology* [Internet]. 2020 May 30;25(2):233–56. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/bjhp.12404>
10. Sherbourne CD, Stewart AL. The MOS social support survey. *Social Science and Medicine*. 1991;32(6):705–14.
11. Topp CW, Østergaard SD, Søndergaard S, Bech P. The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychotherapy and Psychosomatics* [Internet]. 2015;84(3):167–76. Available from: <https://www.karger.com/Article/FullText/376585>
12. WHO. *Wellbeing Measures in Primary Health Care/The Depcare Project*. Copenhagen; 1998.
13. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: validity of a brief depression

- severity measure. *Journal of General Internal Medicine* [Internet]. 2001 Sep;16(9):606–13. Available from: <http://link.springer.com/10.1046/j.1525-1497.2001.016009606.x>
14. Berry JO, Jones WH. The parental stress scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*. 1995;12(3):463–72.
 15. Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction*. 1993;88(6):791–804.
 16. Perrin S, Meiser-Stedman R, Smith P. The Children’s Revised Impact of Event Scale (CRIES): Validity as a Screening Instrument for PTSD. *Behavioural and Cognitive Psychotherapy* [Internet]. 2005 Oct 14;33(4):487–98. Available from: https://www.cambridge.org/core/product/identifier/S1352465805002419/type/journal_article
 17. Young H, Költo A, Reis M, Saewyc EM, Moreau N, Burke L, et al. Sexual Health questions included in the Health Behaviour in School-aged Children (HBSC) Study: An international methodological pilot investigation. *BMC Medical Research Methodology*. 2016;16(1):1–12.
 18. Milgram L, Tonarely NA, Ehrenreich-May J. Youth top problems and early treatment response to the unified protocols for transdiagnostic treatment of emotional disorders in children and adolescents. *Child Psychiatry & Human Development* [Internet]. 2021 Mar 17; Available from: <http://link.springer.com/10.1007/s10578-021-01151-4>
 19. Weisz JR, Chorpita BF, Frye A, Ng MY, Lau N, Bearman SK, et al. Youth top problems: Using idiographic, consumer-guided assessment to identify treatment needs and to track change during psychotherapy. *Journal of Consulting and Clinical Psychology*. 2011;79(3):369–80.
 20. Weisz JR. Testing standard and modular designs for psychotherapy treating depression, anxiety, and conduct problems in youth. *Archives of General Psychiatry* [Internet]. 2012 Mar 1;69(3):274. Available from: <http://archpsyc.jamanetwork.com/article.aspx?doi=10.1001/archgenpsychiatry.2011.147>