The co-creation and implementation of an adolescent school-based mental health intervention in Tanzania

Key findings

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Acknowledgements

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Cover: Traditional Tanzanian cloth. Photo credit: Steffen Foerster | Shutterstock ID: 2727816

Acronyms

CSO	Civil society organisation
FGD	Focus group discussion
ICT	Information and communications technology
IDI	In-depth interview
IGT	Intergenerational trio
IT	Information technology
KII	Key informant interview
LMIC	Low- and middle-income country
MEL	Monitoring, evaluation and learning
NGO	Non-governmental organisation
PORALG	President's Office – Regional Administration and Local Government
PTA	Parent–teacher association
SDG	Sustainable Development Goal
SDQ	Strengths and Difficulties Questionnaire
SES	Socioeconomic status
TTCIH	Tanzanian Training Centre for International Health
UNFPA	United Nations Population Fund
WHO	World Health Organization

Executive summary

This mixed-methods study is part of a project designed to address the mental health needs and psychosocial well-being of adolescents in two very different country contexts, Tanzania and Viet Nam.[1] The summary below outlines the content of the Tanzanian report, core findings and recommendations.

Study aims

The specific objectives of the overall study include the following.

1. To identify drivers of mental ill health among early, middle and late adolescents (10–19 years) in two cities in Tanzania (Morogoro and Mwanza City) and Viet Nam (Vinh City and Nha Trang), while accounting for underlying social norms that may influence mental distress.
2. To co-create/design – with adolescents, teachers and local authorities – and test digital and non-digital approaches or solutions, for use in the classroom, the community and/or in relevant local government units to support adolescents' mental health and overall well-being.
3. To review and adapt the approaches or solutions through learning acquired via a monitoring, evaluation and learning (MEL) system, the mixed-methods baseline and endline studies, and ongoing feedback loops.
4. To document the effectiveness of the non-digital and technology-based solutions tested by the project for addressing adolescents' mental health problems.

The project progressed through six phases: (1) inception; (2) mixed-methods baseline data collection; (3) co-creation/design of solutions; (4) implementation of solutions (hereafter, termed 'the intervention' or 'the programme'); (5) mixed-methods endline data collection; and (6) sharing, dissemination and research uptake.

The focus on Tanzania is warranted by a large youth population, high burden of mental ill health, and limited responsive services. As of 2020, nearly one-quarter of Tanzania's population (23%, or 15.5 million) were adolescents (aged 10–19 years). There is poor understanding of mental health and mental illness, while mental health disorders and symptoms are not recognised and remain largely untreated. Traditional healing practices prevail and access to high-quality professional support is limited.

Chapter 2: Description of study sites and methodology

We collected data from adolescents (aged 10–19) attending primary and secondary schools in both urban/peri-urban and rural study sites.[2] The quantitative survey with 401 adolescents at baseline and 400 adolescents at endline allowed us to understand better mental health status, literacy and service access, and to evaluate the impact of the intervention on students who had participated (the 'treatment' group) and on a control group. Because of the large number of 'replacement' students at endline, we treat the

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1   Starting in March 2020, the project was designed to run for 36 months; Covid-19 delays added 7 months to the project, which was then due to conclude in September 2023.
2   Mhovu Primary School and SUA Secondary School in Morogoro; and Nyamagana Primary School and Magu Secondary School in Mwanza.

control samples at baseline and endline as cross-sections, and our treatment participants (100 students) as a panel.

The survey included two core measures of mental health and psychosocial well-being: the Strengths and Difficulties Questionnaire (SDQ, a measure of emotional and behavioural difficulties) and the WHO-5 index (a measure of subjective psychological well-being). The qualitative component included in-depth interviews, focus group discussions, family case studies / intergenerational trios, as well as key informant interviews. Several students who participated in the quantitative survey were selected for the in-depth interviews.

Chapter 3: The co-creation process and content of intervention: students' perceptions

Co-creation workshops were held at each participating school in Morogoro and Mwanza. The solution that was co-created by adolescents, supported by teachers and the research team, consists of a blend of digital (a computer-based platform, selected by adolescents from Mhovu, SUA and Magu schools) with in-person activities. The computer-based platform includes an offline digital library with interactive mental health resources. At Nyamagana primary school, adolescents opted for a mood tracker as their digital solution. The in-person activities involved outdoor sports, and participation in a group discussion, debate or arts creation (poster, poems, songs). The digital and non-digital activities provided content through seven modules covering topics ranging from types of mental health issues, drivers of mental ill health, stigma and discrimination, coping strategies, treatment and care, and mental health services.

Regular check-ins with study participants and other stakeholders and the endline qualitative study provided detailed insights about various aspects of the intervention. These included attendance patterns (and barriers to attendance), motivations for participation, what participants liked most about the sessions and what they perceived worked less well. Perceptions were generally positive, with the majority reporting that the intervention was 'well presented and taught'. Participants concurred that the intervention would be popular if it were to run again and raised the importance of involving the wider community to raise awareness more broadly around mental health.

Feedback from teachers indicated that this activity was effective in engaging students and teachers who were not directly part of the project implementation, and the headteachers in all four schools demonstrated genuine interest in the activities. Other stakeholders such as local authorities and local medical institutions expressed interest in the intervention, participated in it, and even communicated plans to continue investing in mental health resources. Apart from government officials, teachers in neighbouring schools in Mwanza and Morogoro expressed an interest in running similar mental health interventions in their schools.

Chapter 4: Effects of the intervention on mental health literacy: knowledge and awareness

Using data collected at baseline and endline, we explored changes in mental health knowledge and awareness. Our endline data suggests some marked and statistically significant improvements in all these measures throughout the student population. Overall, the treatment group experienced gains of 16% in emotional literacy, 9% in knowledge of good mental health and

17% in knowledge of how to seek mental health information, compared with gains of 6%–7% for the control group. Increases in emotional literacy and knowledge of how to seek information on mental health were higher for treatment adolescents even after controlling for differences in socio-demographic characteristics (age, gender, region, socioeconomic status (SES), hunger status) and differences among treatment and control group participants at baseline, providing evidence that the intervention itself brought about these improvements.

The qualitative data affirmed that involvement in the intervention and subsequent gains in confidence fostered the acquisition of knowledge about mental health. This newfound understanding extended beyond intervention participants, as they shared their knowledge (and programming materials) with siblings, parents, friends, teachers, and others within their family, school and community. Indeed, the evidence points to: (1) the broad diffusion of gains in mental health within schools and the broader community – acknowledged by headteachers (including mentions of mental health having been raised for the first time at parent-teacher association (PTA) meetings), teachers and parents, as well as adolescents themselves; and (2) adolescents demonstrating the agency to shape conversations with parents, teachers, and others in their school and community. Adolescent participants were encouraged to share their learning at home and within the school; nevertheless, this organic transmission of mental health knowledge well beyond the original intervention target group adds credence to the argument that investments in school-based programmes can spur multi-level change and reinforce support for mental health.

There is evidence of some improvement in attitudes toward mental health issues and a reduction in stigma, though this remains a significant problem. Furthermore, most adolescents reported positive effects of the intervention on their teachers, particularly those who actively facilitated activities; adolescents' reports suggested that teachers became more supportive, forged closer relationships with their students, and offered them advice.

Analysis of data for the whole student population points to gains in our scale measuring Attitudes Toward Seeking Professional Psychological Help for the treatment group (an 8% increase) between baseline and endline and negligible change for the control group; and indeed, our regression model affirmed the positive effect of the intervention, once controlling for differences in socio-demographic characteristics and in the attitudes of the control and treatment groups at baseline. Furthermore, in the qualitative data, at endline, adolescent and adult respondents both displayed a notable understanding of the various formal services and programmes available for managing psychosocial stress. Moreover, we propose that a shift or a broadening of health-seeking behaviour took place, from specialists to non-specialists, in which non-specialists were made more aware of mental health and how to address mental health issues, and adolescents became more proactive in seeking such help.

Chapter 5: Effects of the intervention on mental health and its drivers

We next sought to understand how the intervention affected the two core quantitative measures of mental health and psychosocial well-being in this study – the SDQ and WHO-5 measures. Based on the survey data, we constructed two SDQ subscales measuring mental health difficulties and prosocial behaviours respectively. Whereas adolescents

in the treatment group registered a 9.4% rise in prosocial behaviours (p=0.001) and an equal (but not statistically significant) decline in mental health difficulties, the control group experienced smaller and non-statistically significant changes for both subscales. On the WHO-5 Well-Being Index, our results point to statistically significant increases over time, of 9.4% for the treatment group and 5.6% for the control group.

After introducing the standard controls, our regression analysis reported statistically significant gains in the SDQ prosocial behaviours subscale among treatment participants, whereas improvements in the SDQ mental health difficulties subscale and WHO-5 Well-Being Index were no longer statistically significant. The relationship between sharp gains in mental health awareness (discussed in Chapter 4) and only modest changes in the mental health outcomes appears to merit further exploration.

At the same time, the qualitative data highlights many important effects of the intervention on the drivers of mental health and protective factors for mental health and psychosocial well-being. Adolescents and teachers reported improvements in school performance and a reduction in violence and bullying. Adolescents also reported that the intervention led them to make changes regarding the qualities they disliked about themselves. They also learnt more about what made them happy, discovering that they derived enjoyment from being more sociable, from developing friendships with programme participants, from learning about how to solve conflicts with peers, seeing their peers succeed, and the discovery of new activities such as reading or exercise. Some began to spend more time on new activities (playing sports, spending time with friends after school) after learning that leisure time is important to cope with stress. Adolescents also observed changes in their classmates who were not

part of the intervention, citing greater collaboration in the classroom, more interest in sharing problems with teachers, less use of stigmatising language (by teachers and classmates), and more awareness about mental health. There were reports of some parents becoming more aware of mental health (including their own) and approaching local clinics with their concerns.

Chapter 6: Effects of the intervention on access to and use of formal mental health services

At both baseline and endline, the use of formal mental health services was low. Reasons include personal beliefs, stigma, poverty, geographical location, the limited number of dedicated mental health facilities coupled with scarce human resources, and a lack of awareness among adolescents and adults alike. Teachers and service providers both highlighted structural issues impacting mental health services, including inadequate government funding, outdated guidelines, acute staff shortages, and a lack of priority given to mental health units. Moreover, they underscored the need for supplementary resources, including brochures and educational materials, the use of mass media platforms such as radio, and the integration of mental health topics into school curricula, facilitated by teachers with expertise in psychology.

Chapter 7: Effects of the intervention on coping strategies

There is more evidence of the effects of the intervention on coping mechanisms. Using pooled data from the baseline and endline surveys, we produced indicators of three types of coping strategies: active, avoidant, and expressive/emotional. Our analysis demonstrates a marked rise in the use of active coping among adolescents

in the treatment group only (of 15 percentage points, p=0.000), and no change in the subscales measuring the use of avoidant and expressive coping strategies. Our regression model affirms that the intervention had a positive impact, showing that after controlling for socio-demographic characteristics and differences in coping among the treatment and control groups, the treatment group registered a statistically significant improvement in active coping, over and above the main effects of being in the endline or treatment groups.

The qualitative research provided more detail on the types of coping strategies adolescents use and the impacts of the intervention. Positive coping strategies involved some solitary activities such as listening to music, watching movies, reading, and carrying out school-related tasks. Other strategies involved interacting with others (e.g. playing outdoor games, confiding in trustworthy individuals such as family, friends or neighbours, and seeking solace through prayer at church). Adolescents also mentioned digital games and practising breathing exercises (which they learnt during the intervention). Negative coping strategies included self-isolation and sleep as avoidance behaviours and, among a minority, bullying and a reluctance to share problems with others. While the baseline study recorded similar findings, the endline qualitative study appears to show a reduction in these unhealthy forms of coping.

The intervention also seems to have positively affected adolescent relationships with peers and family members. According to several adult respondents, the implementation of targeted interventions in schools has led to notable improvements in students' support systems. As noted earlier, this provides further evidence of changes in adolescents' propensity to seek help from non-specialists – another area we propose to investigate further in future work.

Chapter 8: Effects of the intervention on technology usage for mental health

Finally, we explored the role of technology in addressing mental health issues and the impact of the digital component of the intervention. Our analysis details the types of digital content that students access, how and where they do so, and the perceived benefits and challenges associated with technology use, from the perspective of adolescents and their parents.

Our survey data pointed to marked statistically significant increases in access to computers for intervention participants, alongside some increases in internet usage and in the share of adolescents who reported having used the internet to access mental health information. For example, the share of intervention participants who reported 'never' having had access to a computer or laptop in the previous year dropped by 31 percentage points while the share with weekly access was up by 19 percentage points and the share with daily access up by 6 points. Our analysis suggests that digital approaches may be important in future mental health-focused interventions, both for their role in motivating students to participate and for the potential they offer to extend access to confidential advice. However, the discussion also highlights the need to provide guidance to adolescents in their utilisation of technology, underlining the significance of a blended (in-person and digital) approach in intervention design. The analysis also uncovered some trepidation among parents about their children's increased digital access, notably concerns over the types of materials they might view on the internet.

Chapter 9: Conclusions and recommendations emerging from the study

Over the course of the endline research, participants in the qualitative study made various suggestions as to how to improve the intervention as well as broader recommendations for improving mental health awareness and service access. The project team also made suggestions based on observations throughout the project and the findings from data collection. These include: intervention logistics; improvements to the digital and sports components; specific aspects of the intervention (including how it can be framed to minimise stigma associated with participation, the need for facilitators who are mental health professionals, and the value of an explicit gender equity approach); extending project participation and duration; and the potential for scale-up to other schools and to the community more broadly.

Broader recommendations related to awareness-raising about mental health and improved service provision. These included the need to increase awareness of mental health (especially targeting youth) and to reduce beliefs that individuals with mental health problems have been 'bewitched'; and to make mental health sessions an integral component of the educational curriculum. Key informants also made suggestions for continuing the intervention, highlighting institutional and structural windows of opportunity. They cited increased awareness among school authorities and government as to the importance of mental health, the critical role of schools in addressing student mental health challenges, and the need for more government support of mental health more broadly.

1   Introduction

1.1   Motivation

In 2019, slightly more than 1 in 8 people globally (970 million) had one or more mental or substance use disorders (Dattani et al., 2018; World Health Organization (WHO), 2022). Mental ill health and psychosocial problems often begin in adolescence, with common mental disorders (anxiety and depression) being the most prevalent psychiatric illnesses among adolescents and young people worldwide (Deighton et al., 2019; WHO, 2020; 2022). Studies show that suicide rates among young people are rising, often owing to undiagnosed and untreated mental ill health and psychosocial distress (Patel et al., 2007; WHO, 2016; Samuels et al., 2018). Indeed, suicide is the third leading cause of death among 15–19-year-olds (WHO, 2021a).

An overwhelming body of evidence highlights the toll of the Covid-19 pandemic and associated lockdowns on the prevalence and severity of mental health problems. The WHO (2022) estimated an increase of more than 25% in already common conditions such as anxiety and depression in the first year of the pandemic. The accumulating evidence suggests that adolescents, females, and those with previous or current mental health difficulties were disproportionately affected.[3] For example, Panchal et al. (2023) report that 57% of the studies they reviewed found symptoms of anxiety exacerbation among young people, that the prevalence of youth experiencing severe depression rose from 10% to 27%, and that self-harm, suicidal ideation, planning and attempts

all increased. Meanwhile, Young Lives (2022) studies of Ethiopia, India, Peru and Viet Nam also found sharp rises in reported anxiety and depression and a significant decline in subjective well-being, particularly for young women experiencing interruptions to their education and increased domestic work, and for young people who lost jobs because of the pandemic.

There has been some progress in global attention to mental health. Sustainable Development Goal (SDG) 3 includes three references to mental health;[4] discussions around mental health were at the forefront of the World Health Assembly 74 in 2021, spurred on by the pandemic; the WHO-led Mental Health Gap Action Programme (mhGAP) has played an important role in supporting the scale-up of national services for mental, neurological and substance use disorders, especially in low- and middle-income countries (LMICs) (WHO, n.d.); and many non-governmental organisations (NGOs) and civil society organisations (CSOs) (including those led by youth and using digital approaches)[5] are now working on mental health issues, including in LMICs.

This progress notwithstanding, mental health remains neglected, especially in LMICs. While Covid-19 may be making in-roads in shifting this pattern, mental health is not seen as a priority in many contexts: less than 2% of national health budgets globally are spent on mental health (WHO, 2020) and this drops to less than 1% for LMICs (the WHO suggests 5% as a

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3   See systematic reviews by Salari et al., 2020; Meherali et al., 2021; Panchal et al., 2023; also Ettman et al., 2022 on the United States.

4   It is directly mentioned in SDG targets 3.4 and 3.5, and implicitly included in SDG target 3.5 (Votruba et al., 2016).

5   Summaries of some of these approaches can be found in Rost et al., 2020, and Ananthakrishnan et al., 2020.

minimum allocation). This shortfall in mental health spending results in gaps and shortages of trained personnel, services being concentrated in a few (often urban) areas, and funding favouring mental health hospitals at the expense of community-based and/or other support or preventive services. Similarly, most funding is directed towards severe mental disorders (such as schizophrenia and bipolar disorders, which are more easily observable and measurable) rather than the most common disorders and less severe forms of mental ill health. The latter often go unreported and untreated because they are more difficult to diagnose, less visible, and people are unwilling to come forward because of stigma (Weiss et al., 2012; van Ginneken et al., 2013; Kutcher et al., 2016).

People living in LMICs disproportionately experience poverty, gender inequality, impacts from climate change-related events, and inadequate access to good physical health, literacy and housing, which can augment mental health difficulties (Weiss et al., 2012; Kutcher et al., 2016; Mathias et al., 2018). Where mental health services do exist, they are often inaccessible to those most in need, owing to resource constraints and cultural norms (Patel et al., 2007; 2011; Kutcher et al., 2017; Rathod et al., 2017; Alloh et al., 2018). Yet, despite increased attention to adolescent mental health in recent years, adolescents with mental health conditions in LMICs experience worse quality of care compared with other age groups. This is because they are often less-experienced users of mental health services, with inadequate mental health literacy, including literacy about quality of care (Quinlan-Davidson et al., 2021). Similarly, available services and programming are often both age and gender blind, as they are not tailored to the needs of adolescents; nor do they adequately reflect how gender norms are replicated by health systems (Percival et al., 2018).

1.2 Study objectives and fit with evidence gaps

As anxiety and depression often start during adolescence (Kessler et al., 2007; Patton et al., 2016; WHO, 2021a; 2021b), targeting interventions to youth helps to mitigate long-term personal and economic costs while taking advantage of a developmental window of opportunity (Crone and Dahl, 2012). Within this context, the overall aim of this project has been to address mental health needs and support the broader well-being of adolescents in urban settings in Tanzania and Viet Nam. These two countries were selected to represent different LMIC contexts. While the purpose is not to compare the mental health environments (in terms of drivers of mental ill health, mental health service provision, etc.), the different levels of economic and technological development both across and within the two countries, as well as the different kinds of health systems and status of mental health provision, make them interesting cases to explore alongside one another. Additionally, differences in underlying structures – including cultural contexts and the social and gender norms that influence behaviour, the poverty and livelihood dynamics, as well as the political systems – all exert diverse and context-specific effects on adolescent mental health and broader well-being.

The specific objectives of the overall study include the following.

1. To identify drivers of mental ill health among early, middle and late adolescents (10–19 years) in two cities in Tanzania (Morogoro and Mwanza City) and Viet Nam (Vinh City and Nha Trang), while accounting for underlying social norms that may influence mental distress.

2. To co-create/design – with adolescents, teachers and local authorities – and test digital and non-digital approaches or solutions, for use in the classroom, the community and/or in relevant local government units to support adolescents' mental health and overall well-being.

3. To review and adapt the approaches or solutions through learning acquired via a monitoring, evaluation and learning (MEL) system, the mixed-methods baseline and endline studies, and ongoing feedback loops.

4. To document the effectiveness of the non-digital and technology-based solutions tested by the project for addressing adolescents' mental health problems.

The project progressed through six phases: (1) inception; (2) mixed-methods baseline data collection; (3) co-creation/design of solutions; (4) implementation of solutions (hereafter, termed 'the intervention' or 'the programme'); (5) mixed-methods endline data collection; and (6) sharing, dissemination and research uptake. Starting in March 2020, the project was designed to run for 36 months; Covid-19 delays added 7 months to the project, which was then due to conclude in September 2023.

As part of the inception phase, a set of literature reviews helped to situate and hone the overall project design, providing guidance to both the mixed-methods baseline and endline primary data collection as well as the design of the digital and non-digital solutions that were co-created with adolescents and others. These literature reviews also identified some knowledge gaps, and the study aims to contribute to addressing those gaps.[6] Key findings from the literature reviews included the following.

- Despite a range of tools and programming focusing on mental health in LMICs, few approaches target adolescents and children (Ananthakrishnan et al., 2020).
- Although digital interventions to address mental ill health are becoming ever more popular, these can exacerbate digital divides; in-person, face-to-face interventions remain important, although blended (digital and non-digital) approaches are the ideal (Rost et al., 2020).
- With few exceptions, tools and scales for measuring mental health have not been adapted and validated fully in Tanzania and Viet Nam, rendering it critical to account for context specificities (Ananthakrishnan et al., 2020).
- There is limited literature on the co-creation of mental health approaches with school children in LMICs and the two study countries (e.g. Kutcher et al., 2019).

The focus on Tanzania is warranted by a large youth population, high burden of mental ill health, and limited responsive services. As of 2020, nearly one-quarter of Tanzania's population (23%, or 15.5 million) were adolescents (aged 10–19 years) (United Nations Population Fund (UNFPA), 2023). A nationally representative pre-pandemic survey of 700 secondary school students found that 41% demonstrated an elevated level of mental health problems in the previous 6 months (Nkuba et al., 2018). However, several challenges limit rapid access to effective care for young people experiencing mental health symptoms: poor mental health literacy; high levels of stigma; problematic insurance coverage for mental disorders; lack of psychotropic drugs; and weak capacity at the community level to address and access mental health care (Kutcher et al., 2016; 2019; Ambikile and Iseselo, 2017).

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6   The outputs of the literature review can be found on the project webpage.

Mental health infrastructure is lacking, with few mental health hospitals, psychiatric units and community-based mental health care programmes, especially in rural and more remote areas (Mwambingu et al., 2019; WHO, 2020; León-Himmelstine et al., 2021; Kaggwa et al., 2022). The Tanzanian health sector is centrally organised; the Ministry of Health monitors and coordinates national health priorities and plans, and the regional and district hospitals implement them (see Annex 1 for a brief overview of the national policy and service environment for mental health provision in Tanzania).

WHO data suggests there are approximately 38 psychiatrists or 0.07 per 100,000 people (WHO, 2020). Although psychiatric nurses provide most mental health services, they are stretched to capacity with a ratio of 0.85 per 100,000 people (WHO, 2020) and have limited training in youth mental health. Indeed, most Tanzanians turn to traditional or alternative medicine: mental illness is the second most common condition treated by traditional practitioners (Kutcher et al., 2017). Traditional healing is usually more accessible than formal health services, especially for people in rural areas, due to a lack of available and accessible mental health care professionals, poor transportation, and acceptance of spiritual and/or supernatural causes of health problems (Kutcher et al., 2016). The extent to which young people adhere to traditional healing approaches to treat mental health issues in Tanzania is unknown (ibid.).

Our baseline data collection sought to assess levels of mental ill health and psychosocial well-being, and knowledge and awareness about mental health. We also sought to identify the key drivers of mental ill health and psychosocial well-being among our study population, the coping strategies adolescents employed, their ease of access to services, and the role of technology. The quantitative analysis explored the joint impact of all variables (socio-demographic factors, drivers of mental ill health, protective factors, coping mechanisms/help-seeking behaviours, and access to technology) on the key mental health indicators, finding that they explained around 30% of variation in key mental health outcomes. Factors that proved protective of mental health included positive attitudes towards accessing psychological help and having access to a digital device. Conversely, the two factors that most influenced the risk of depression among adolescents were being subject to physical violence from parents, and poverty (measured as having experienced hunger in the previous year). In this report, we elaborate on this baseline data and analyse it as a basis for understanding how mental health changed in the student body over the subsequent three years and the extent to which the intervention affected participants' mental health.

1.3 Structure of the report

This report is structured as follows. Chapter 2 describes our methodology and study sites. Chapter 3 discusses the phases of co-creating the intervention, and its implementation and adaptation, as well as participant feedback. Chapters 4–7 analyse the effects of the intervention, drawing on quantitative and qualitative data collection at baseline and endline. Chapter 4 focuses on how the intervention affected knowledge and awareness of mental health issues; Chapter 5 focuses on the effects of the intervention on adolescent mental health and psychosocial well-being; Chapter 6 explores any changes in access to and use of formal mental health services in the study sites, and the extent to which any changes can be attributed directly to the intervention; and Chapter 7 delves

into how the intervention affected positive and negative coping mechanisms and interpersonal relationships among study participants, covering evident behavioural changes and subtler shifts in mental resilience and relationships that could affect longer-term mental health. Chapter 8 investigates how technology was used in the intervention and the extent to which it shaped outcomes, highlighting its advantages as well as the challenges it raises and underscoring the value of blended (in-person and digital) approaches in designing mental health interventions. Chapter 9 concludes by offering reflections on the overall impact of the intervention, what we have learnt from it, and recommendations for future research, policy and programming.

2   Description of study sites and methodology

This chapter gives an overview of the study sites (Section 2.1), our methodology (Section 2.2) and ethical issues, protocols and study limitations (2.3). The methodology section describes the evaluation design, which included both quantitative and qualitative data collection.

2.1   Study sites

Our data collection focused on adolescents aged 10–19 years attending primary and secondary schools in two regions of Tanzania, Mwanza and Morogoro, located on the southern part of Lake Victoria and on the eastern side of the country respectively. Mwanza is a metropolitan region, whereas Morogoro is predominantly rural. Each region houses 5%–6% of the country's population, with livelihoods based on agriculture, as well as service provision and mining. Morogoro has a higher level of human development: in 2022, the Human Development Index (HDI) was 0.546 for Morogoro compared with 0.523 for Mwanza (Global Data Lab, 2023). Educational inequalities based on location (urban–rural areas), region and wealth are notable. For example, the latest data shows a primary school completion rate of 77% in rural areas compared with 93% in urban areas; secondary completion rates are 3% and 14% respectively. Gender disparities are also evident; girls are slightly more likely to complete primary school and less likely to complete secondary school than boys.[7] Recent increases in enrolment rates are linked to the fee-free education policy (for primary and secondary

schools) and collaboration between government, private institutions, faith-based organisations and community-based organisations in provision of basic education (Basic Education Statistics (BEST), 2020).

2.2   Methodology

During the project's inception phase, in order to contextualise the study within broader debates around adolescence, mental health and psychosocial support services, and digital technologies, the research team commissioned five literature reviews to explore: (1) the effects of Covid-19 on adolescents' mental health in Tanzania and Viet Nam (Chakraborty and Samuels, 2021); (2) frameworks and tools to measure and evaluate mental health and psychosocial well-being (Ananthakrishnan et al., 2020); (3) non-digital interventions for adolescent mental health and psychosocial well-being (ibid.); (4) digital approaches to adolescent mental health (Rost et al., 2020); and (5) drivers of and protective factors for mental health and psychosocial well-being among adolescents in both countries (Plank et al., 2021). Drawing on global literature as well as the literature on Tanzania, these reviews helped to identify existing gaps in the evidence base as well as how to frame the current study.

The data collection followed a quasi-experimental design using quantitative and qualitative research methods. One purpose of the qualitative work was to validate and deepen our understanding

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7   Primary school completion rates in 2020 were 72% for females and 66% for males (UNESCO data, accessed via World Development Indicators); secondary school completion rates in 2019 were 13% and 17% respectively (World Inequality Database on Education (n.d)).

of the quantitative findings; for this reason, we identified several students who participated in the quantitative survey for in-depth interviews, as described below. The methods align with the MEL component, which describes the changes the project aims to contribute to, following a theory of change and a results framework (see annexes 2 and 3). The MEL component also sought to document knowledge outputs, web statistics, events and project uptake, as evidenced through important moments recorded during the project implementation (Annex 4).

2.2.1   Quantitative methodology

2.2.1.1   Sampling at baseline and endline

At baseline, the quantitative survey aimed to construct a profile to better understand mental health status, literacy and service access, and to inform evaluation of the impact of the digital and non-digital interventions on these constructs. At endline, the aim was to understand the impact of the intervention on students who had participated (the 'treatment' group) and on a control group.

The study employed two-stage stratified cluster sampling. We assumed that the regions and schools correspond to diverse strata within the country, while classrooms are heterogeneous clusters within each school. The first stage involved the selection of two schools each in an urban/peri-urban or rural area of each region (Morogoro and Mwanza), following a purposive sampling design to allow for sufficient diversity in terms of school level and location. Schools also needed a minimum of 10 working computers, and teachers with basic information and communications technology (ICT) skills.[8] Within

each region, the in-country project coordinator selected one primary school (generally 11–15-year-old students) and one secondary school (generally 16–19-year-old students) in both the urban/peri-urban and rural areas. The sample was recruited through public schools, which most Tanzanian children attend (United Republic of Tanzania, 2019); the vast majority (90%) of the country's primary schools are public, as are 75% of secondary schools.

The second stage involved randomly selecting two to three classrooms per school. All students in these classrooms on the day of data collection were asked to participate in the study. At baseline, the study intended to target grades 5 and 6 (primary level) and forms 2 and 3 (secondary level), but due to an insufficient number of students per class in some schools and due to ongoing exams, students from grade 7 (primary) and form 4 (secondary) were included, giving a total of six different classrooms across the two regions (Table 1). The choice of the class level was influenced by students' ability to conceptualise the content and respond to the self-administered questionnaire, and their availability to participate in the intervention. We also aimed to capture primary–secondary age differences. The number of classes selected per school depended on the number of streams per class and number of students per stream needed to attain a required sample size with sufficient statistical power per school (95% confidence intervals and 5% standard error). A total of 405 students were invited to respond to the survey (200 in Mwanza and 205 in Morogoro), of whom 401 (99%) agreed to participate.

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8   Camara Education (Tanzania) provided this information.

Table 1 Schools and classes selected for the baseline and endline surveys by region

	Region			
	Morogoro		**Mwanza**	
Rural	**Mhovu Primary School**		**Magu Secondary School**	
	Baseline: Grades 6 & 7	**Endline:** Grades 6 & 7	**Baseline:** Form 2	**Endline:** Forms 3 & 4
Urban/ peri-urban	**SUA Secondary School**		**Nyamagana Primary School**	
	Baseline: Forms 2, 3 & 4	**Endline:** Forms 3 & 4	**Baseline:** Grades 6 & 7	**Endline:** Grades 5, 6 & 7

The intervention was school-wide; participation was not confined to students who had taken part in the original baseline. For this reason, we administered a second baseline survey to students who had not taken the original survey but chose to join the intervention. Limited resources prevented our conducting a full second baseline. Consequently, our sample consists of two baselines for two different populations (members of the original classrooms selected for the survey and other students who self-selected into the intervention), conducted from 3–15 March 2021 and from 11–29 October 2021, respectively.

In total, 265 students (188 primary students and 77 secondary students) who took part in the initial baseline assessment completed their studies and had left the school by the time of the endline evaluation.[9] A total of 116 students participated in the intervention, 16 of whom left prior to endline. Since we had a baseline measure only for these 16 respondents, we reassigned them to the baseline control group. Our 'treatment' group therefore consisted of 100 students: 22 students from baseline 1 who participated in the intervention and were present at endline, and 78 students who joined after baseline 1, and therefore participated in the second

baseline, the intervention and the endline survey. Our endline, conducted from 13–24 February 2023, consisted of 100 students who had participated in one of the two baselines and 300 students who had not (Table 2). Because of the large number of 'replacement' students at endline, we treat the control samples at baseline and endline as cross-sections, and our treatment participants as a panel.

Our aim was to fit the evaluation to the broader intervention rather than the other way around. For ethical reasons, we decided to open the intervention to any interested student rather than confining it to students who had participated in the baseline (which proved fortuitous given delays in starting the intervention).[10] We were aware of the possibility of contagion effects between intervention participants and their classmates but decided not to take any steps to minimise this; instead, we opted to make this part of the evaluation design and probe in the qualitative work for any 'spillover' effects between the treatment and control groups. In any event, given that we ended up replacing 265 members of our sample at endline (owing to baseline survey respondents having left school over the course of the study), this ended up being less of a concern.

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9   Students who were in grades 6 and 7 (in primary schools) and forms 3 and 4 (in secondary schools) at baseline.
10   These delays had two sources, relating to: (1) time needed to finalise the baseline report (needed to inform co-creation process and content of intervention); and (2) time needed to develop and translate the digital and non-digital content for the intervention.

Table 2   Distribution of the sample at baseline and endline, by school

Survey round	Magu sec	Mhovu pri	Nyamagana pri	SUA sec	Total
Baseline 1 only	81(44.7)	100(49.3)	97(48.7)	100(48.5)	378(47.9)
Baseline 1 & endline	19(10.5)	0(0.0)	3(1.5)	0(0.0)	22(2.8)
Baseline 2 only	0(0.0)	3(1.5)	2(1.0)	6(2.9)	11(1.4)
Baseline 2 & endline	3(1.7)	27(13.3)	24(12.1)	24(11.6)	78(9.9)
Endline only	78(43.1)	73(36.0)	73(36.7)	76(36.9)	300(38.0)

Box 1   Selection bias and weighting according to survey characteristics

Our analysis of the raw data on student characteristics pointed to statistically significant differences in age and socioeconomic status (SES) between the treatment and control groups. On average, primary school participants in the intervention were younger and better off (concentrated in the top SES tercile) than those in the baseline sample, while secondary school participants were younger and more disadvantaged (namely, there were more secondary school children from the bottom SES tercile). For primary and secondary students at baseline and endline, in both the treatment and control groups, the sampling weight adjusts for differences in age and SES composition.

A key challenge was the possibility of selection bias among intervention participants. We computed sample weights to address this bias; the weight readjusts the demographic composition of the baseline-treatment, endline-control and endline-treatment populations so that they conform to the demographic composition of the baseline 1 (control and treatment), which is the closest representation of the demographic composition of the school (Box 1). All computations presented in this report use sampling weights.

2.2.1.2   The questionnaire

The questionnaire was designed by consulting existing surveys on mental health. Our review sought to identify robust indicators of adolescent mental health and psychosocial well-being (Table 3), constructs aligned with the key study hypotheses (Table 4), and other indicators that previous research suggested were likely to influence mental health access and outcomes (Table 5). To measure key constructs, we sought to identify scales with well-established psychometric properties and, where possible, to include those that had been previously validated in Tanzania or East Africa. The survey was translated into Swahili with some modifications to accommodate the unique properties of the language.[11] For the second baseline and at endline, we administered a shorter survey. Having already analysed the

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11   We reduced the Likert scale from 5 to 4 options because of difficulties in obtaining a valid translation for the category 'neither agree nor disagree' in Swahili. Dow et al. (2016) also report adopting a 4-point rather than 5-point response scale in their Swahili questionnaire for this same reason.

baseline data, we had a better sense of which data was most important to collect; we also wanted to keep the survey as short as possible to minimise the time needed to collect the data and to prevent respondent fatigue. Annex 5 provides additional details of questionnaire design and scale validation, while Annex 6 includes the questionnaire administered at the second baseline and endline.[12]

Table 3 Indicators of adolescent health and psychosocial well-being

Scale	Construct	Resulting indicators
Strengths and Difficulties Questionnaire (SDQ)	Effective in screening for a range of child psychiatric disorders including oppositional disorders, hyperactivity disorders, depression, pervasive developmental disorders and some panic disorders (Goodman, 2018)	1. Raw score
WHO-5 Well-Being Index	Measure of psychosocial well-being and screening instrument for depression (Topp et al., 2015)	1. Raw score 2. 'At risk of depression' to which we designate individuals with a score of less than or equal to 50% of the total (normalised) score, a widely used threshold (see Topp et al., 2015)

Table 4 Key constructs, hypotheses and corresponding survey indicators

Construct	Hypothesis (by endline)	Measures
Mental health awareness	20% increase in adolescents' mental health literacy	Emotional literacy scale (O'Connor and Casey, 2015) Knowledge of what is important for good mental health scale (Bjørnsen et al., 2017) Knowledge of where to seek information subscale of the Mental Health Literacy Scale (MHLS) (O'Connor and Casey, 2015)
Agency in coping with mental health challenges	20% increase in the reported confidence of adolescents in their ability to address mental health problems	Ways of coping with mental health challenges scale (Kidcope children's version) (Spirito et al., 1988), with our additions (see Annex 5)
Help-seeking behaviour	20% increase in the number of adolescents who use tech and non-tech solutions to address mental health issues, conditional on average levels of mental health	Attitudes Toward Seeking Professional Psychological Help scale (Fischer and Farina, 1995; Picco et al., 2016) Use of technology to seek health/mental health information indicators

Note: See also project results framework in León-Himmelstine et al., 2021, Annex 2.

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12   For the original survey, see León-Himmelstine et al. 2021, Annex 4.

Table 5 Other determinants of mental health included in survey questionnaire

Theme	Details
Socio-demographic	Characteristics of respondents and households
Education and health	Subjective reports of education performance and physical health
Social support	Family, friends, role models
Technology	Usage overall and in seeking health information
Violence and responses to violence	Violence by peers, parents, teachers
Engagement in risky or harmful behaviours	Alcohol, smoking, drugs, self-harm, violence
Sexual activity	Engagement in sexual activity, number of partners, engagement in unwanted sex and in sex while drunk

At baseline, the questionnaire and psychometric scales were tested and refined after piloting of the survey. The validation process was then repeated at endline (see Annex 5).[13] In comparing baseline and endline, we used a pooled dataset including both baseline and endline data to establish thresholds that we then applied to both rounds. For some scales, to maximise construct validity and reliability, we only retained data for scale items that were loading as expected in the exploratory factor analysis and excluded those that would increase Cronbach's alpha if the item was deleted. This enabled us to construct measures that were most attuned to the context where the survey was administered, albeit at the expense of comparability with other studies conducted in Tanzania or elsewhere.

The team concluded that the psychometric scales provided valid and reliable measures of the baseline mental health of the adolescent population in these schools.[14] We obtained good reliable scales for the following indicators: emotional literacy; knowledge of what is important for good mental health; knowledge of sources of information-seeking; Attitudes Toward Seeking Professional Psychological Help;[15] the Strengths and Difficulties Questionnaire (SDQ); and the WHO-5 Well-Being Index. One scale – ways of coping with mental health challenges (Kidcope) – exhibited relatively low reliability at baseline level even after piloting and refinement.[16] The endline repeated this pattern. The available evidence suggests that the issues we encountered with Kidcope are shared more widely (see Annex 5 for further discussion).[17]

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13   Full details concerning the validity and reliability for scales in each survey round are available upon request.

14   See Annex 3, Table A1 for full details of the validation results for the pilot survey and the final baseline.

15   The measure demonstrated borderline reliability at baseline (Cronbach's alpha of .54) and endline (alpha of .56). However, reliability among the age 10–13 population rose from .36 to .51, which may reflect an improved understanding of mental health.

16   The factor structure of Kidcope for our baseline still produced a coherent structure grouping active, expressive and avoidant coping strategies respectively. The scale for active coping (including problem-solving, seeking social support, cognitive restructuring) shows a low but acceptable level of reliability (alphas of .58 and .56 at baseline and endline respectively). The expressive and avoidant coping factors demonstrated lower reliability (endline alphas of .48 and .39 respectively, compared with .43 and .36 at baseline).

17   As Antoniou and Drosos explain (2017: 62): 'As there are few available instruments that assess children's coping strategies, Kidcope is widely utilised, although there are varying results regarding its psychometric properties and factor structure.'

The survey was self-administered by the students through a paper-based questionnaire. This reduced the cost and time needed for data collection, as it permitted surveying many students in a relatively short time. The approach may also have reduced interviewer bias in responses to sensitive questions. A team member provided a brief introduction in each classroom setting out the background, rationale and objectives of the study before asking students to respond to the questionnaire. The researcher read questions aloud where required.

The survey team computed levels at baseline and endline for each key indicator for the sample and for relevant subgroups – e.g. by school level, age group, region, gender, household socioeconomic status, etc. (see Annex 5). We analysed the statistical significance of between-group differences using t-tests, describing the results that are statistically significant (at 5% or lower) and reporting non-significant results when relevant. To address potential selection bias related to the composition of the treatment and control groups, and to account for the effects of time elapsed between baseline and endline (and associated changes in age and development level) as well as the impact of the treatment itself, we employed ordinary least squares (OLS) or ordinal logistic regression analysis (depending on whether the dependent variable is continuous or categorical) with robust standard errors on our pooled dataset. Each mental health indicator (and each indicator on the frequency of technology usage) was analysed as a separate dependent variable. Our covariates included: standard socio-demographic characteristics to control for any biases stemming from sample selection (age, gender, region, SES tercile, hunger status); dummy variables to indicate group assignment (control or treatment) and survey timing (baseline or endline); and an interaction term between group and time

to isolate the treatment effect. This interaction term is particularly crucial as it quantifies the additional effect of being in the treatment group at endline, beyond the main effects of being in the endline or in the treatment groups separately. Data preparation and most of the statistical analysis was conducted using Stata/SE 14.0 for Windows, while some scale validation, significance testing and complementary analysis used SPSS.

2.2.2   Qualitative methodology

Primary qualitative data collection was carried out at baseline in March 2021 and at endline in February 2023 by a team comprising members of the Tanzanian Training Centre for International Health (TTCIH) and the ODI team remotely. At both baseline and endline, the local team piloted the data collection tools, which had been developed by all members of the study team, in Mwanza and Morogoro. Tools were then further adapted. Researchers collected qualitative data in the same sites selected for the quantitative data collection.

Qualitative tools at baseline and endline included in-depth interviews (IDIs), focus group discussions (FGDs), family case studies (FCSs) or intergenerational trios (IGTs – where different generations of the same family are interviewed in relation to a 'nodal adolescent'), and key informant interviews (KIIs). At baseline, two strategies were used to enrol adolescent participants in the study. First, we used purposive sampling to enrol adolescents disaggregated by age (younger [10–14 years] and older adolescence [15–19 years]), gender (male and female), mental health status, and academic performance, with the aim of identifying students with diverse characteristics. These participants were recruited through enrolment lists with socio-demographic characteristics shared by school academic

teachers/headteachers. Second, the team selected 16 adolescents who participated in the baseline survey (8 from each region) to take part in an IDI, based on their gender and a relatively high risk of mental health issues (based on the SDQ subscale that measured levels of internalising issues such as depression or anxiety). At endline, comparable strategies were employed. Nevertheless, during the IDIs, adolescents who had implemented the interventions were included, whereas in the FGDs, a mixed group of participants was selected, comprising both those who had implemented the interventions and those who had not. This approach was adopted not only to create awareness about the interventions but also to assess their effectiveness on adolescents' mental health and psychosocial well-being. A total of 93 interactions (including all IDIs, FGDs, IGTs and KIIs) were conducted across the two study sites at baseline and 98 at endline (see Annex 7 for details of the qualitative sample).

The qualitative tools explored the following areas: drivers of mental ill health and psychosocial distress across different domains of adolescents' lives (in school, in the home, in interpersonal relationships); social and gendered norms that may affect mental well-being; demand- and supply-side issues in relation to service access, quality and provision; and the kinds of technologies that are available and used by students, including the challenges and opportunities that each presents. At endline, we focused on the effects of the intervention on all these areas – for instance, on drivers of mental ill health, on knowledge of mental health services and on coping (see Annex 8 for endline qualitative data collection tools).

With appropriate consent, all interviews and discussions at baseline and endline were recorded, and then translated and transcribed. The study team jointly developed a coding structure based on key themes emerging from the data and key topics from our previous literature reviews. Interactions were translated from Swahili to English and transcribed by the research team that had collected the data and were familiar with respondents' answers. Translations and transcriptions were supervised by the qualitative lead at the TTCIH and one more researcher to check quality and reliability of data. All interviews were then coded and entered into MAXQDA (data analysis software) by three research assistants. Data from the coded segments was summarised according to agreed themes and the analysis also explored differences emerging from different variables, including site/location, gender, education, religion, mental health problems and experiences, and household structure. The analysis was then written up in the agreed report format.

While coding the qualitative interviews, researchers aimed to record whether statements, opinions or perceptions shared by respondents were described by a majority, more than half, some, or just a few. In the report, we refer to 'most' or 'the majority' when a statement corresponds to well over 50% (usually two-thirds of respondents or more). We use 'more than half' when a statement corresponds to over 50% of respondents. We use 'some' when a statement corresponds to fewer than half of participants. We use 'few' when a statement corresponds to just three or four participants (usually). Finally, when a statement was mentioned by only one or two respondents, the report states so explicitly.

2.2.3 Ethics protocol and study limitations

ODI has its own ethics review committee composed of internal and external members. This committee reviewed all data collection instruments and other protocols, and recommended adjustments as and when

necessary. The review covered data collected at both baseline and endline. In-country clearance was then obtained from the National Health Research Ethics Review Committee (NatHREC) of the National Institute for Medical Research (NIMR). Research clearance and permit was obtained from the Tanzania Commission for Science and Technology (COSTECH). Approval to conduct this study was also sought from the President's Office – Regional Administration and Local Government (PORALG) authorities, as was an introductory letter that introduced the research teams to the appropriate local government authorities of Mwanza and Morogoro regions, and to the village/ward leaders and headteachers who helped identify study respondents in their respective catchment areas.

At baseline and endline, adolescents gave written consent to participate in the survey, acknowledging that their participation was completely voluntary and that they were free to stop at any point or to leave blank any questions they did not wish to answer (see text in Annex 6). Participants in the baseline and endline qualitative data collection also gave informed consent to take part, with initials and random numbers used to protect identities. All parents were informed about the study and involvement of their children prior to the school visits. For respondents under the age of 18, the team first sought consent from parents and teachers acting as their guardians. The research teams were trained prior to the fieldwork and were regularly reminded to adhere to the safeguarding protocols. If research participants experienced any distress, the team followed the safeguarding procedure under the supervision of the lead researcher.

A few limitations merit discussion. The first concerns survey representativeness; as explained earlier, we adopted a two-stage stratified cluster sampling design. Ensuring representative data at a regional level would require selecting diverse localities (urban, peri-urban and rural), schools and classrooms within each region. While we sought to maximise diversity in the selection of schools, the absence of a full sample frame meant we could not design a statistically representative sample. As a result, we cannot conclude that the findings are regionally representative and recommend presenting school-level results. Relatedly, the team had to select classrooms in which students were available to take the survey (e.g. classes not taking exams). At baseline, this entailed recruiting 123 students (31% of respondents) outside the selected classrooms to obtain the sample size needed. Similarly, during the endline evaluation, 38 students at Nyamagana primary school were recruited from classrooms not included in the original selection. In other words, some adjustments needed to be made to the sampling strategy to accommodate realities in the study sites.

The second potential limitation concerns questionnaire sensitivity and potential response bias. Although the study team guided students on how to respond to the questionnaire and clarified any confusing words to aid accuracy, the answers received were accepted as final. For example, the team guided students on how to respond to questions on a Likert scale (e.g. on emotional literacy, good mental health) and clarified unfamiliar terms to enable them to choose the answers most applicable to their feelings and experiences. This was also the case for some questions in the qualitative tools, such as those related to Covid-19, since the team could not probe sufficiently on this as it was a sensitive topic for the former government, and students and adults responded cautiously. The possibility of response bias arises since respondents had access to the full survey before responding to any one

question, which might result in changing some of their responses to be able to skip the follow-up questions – for example, in the case of questions related to sexual activity among older adolescents. We found that including 'I prefer not to say' as a response may have increased the propensity to respond accurately to sensitive questions: significant numbers of students selected this option, which we inferred was a likely indication of engagement in the behaviour in question, as described in the analysis below.

A third limitation relates to the overlap between our study and the Covid-19 pandemic. As described earlier, this is likely to negatively affect the mental health of the population following baseline, such that our baseline estimates may overstate mental health prior to the intervention.

A fourth limitation relates to selection bias. As already noted, allowing students to select into the intervention was a critical aspect of its design and we did not attempt to control who did and did not participate; relatedly, some spillover effects are indeed possible. Though we attempted to control for selection bias by reweighting the characteristics of intervention participants to

conform to those of the control population, and through regression analysis, we cannot be certain that this will have entirely solved the issue.

A fifth limitation relates to the impact of exams and other potential sources of stress during the first baseline data collection. Data was collected very close to exam time, and so high stress levels during exam periods may have affected responses to the questionnaire and the qualitative interviews. It is also possible that some survey participants might have responded without paying due attention to the content due to exam fatigue and time constraints; however, fewer than 10 students among the 401 participants skipped any questions, suggesting this was unlikely.

Finally, during endline data collection, we identified 44 students (11% of the respondents) – 39 from Mhovu Primary School and 5 from Nyamagana Primary School – who faced challenges in reading and writing. From this group, 19 students were randomly selected to participate in the survey, with enumerator assistance. The reliability of responses to the scales in the questionnaire from these participants was comparable to that of those who took the surveys themselves.

3 The co-creation process and content of intervention: students' perceptions

This chapter describes the co-creation process and the content of the intervention that was implemented at the four study sites in Tanzania. It also describes students' perceptions of the programming – what they saw as positive elements and challenges, and their suggestions for future programming.

3.1 The co-creation process

To design the co-creation process, the full team (researchers, technology developers, and experts in co-creation and MEL) met weekly over a two-month period to agree on the number, duration and content of the sessions, as well as who would facilitate them and how. Drawing on these discussions, the team prepared a shortlist of solutions to be discussed with the adolescents, as well as activities, games and energisers, and the materials that would be made available. Co-creation workshops were held at each participating school in Morogoro and Mwanza (Box 2, see also Kyungu and Mbowe (2023) for more details of the co-creation process).

> **Box 2 The co-creation process: participants and process**
>
> Each workshop had 40–48 participants, with a total of 172 participants across all four. The workshops comprised five sessions (Table 6), led by clinical, technological and education experts. The first session (1a) was organised for various stakeholders, including teachers, parents, local government authorities, mental health providers, and NGO representatives in proximity to participating schools. This special session aimed to gather their input on key factors for improving adolescent mental health, ensuring the self-management and sustainability of co-created solutions, defining their roles, addressing challenges, and specifying the types of solutions needed for the project's success.
>
> Adolescents, categorised according to their age and gender, took part in Session 1b and all other sessions. Sessions 2 and 3 were organised in small groups of 5–6 participants, selected randomly. A group facilitator led them through the process of collaboratively designing their solutions using a pre-prepared support booklet. The paper-based prototypes resulting from this co-creation process were subsequently presented to the plenary before transparent voting sessions were held.

Table 6 The co-creation process

Key steps	Key stakeholders	Goals
Session 1: Involvement of key stakeholders	• Teachers, parents, local government authorities, mental health service providers and representatives of relevant NGOs (Session 1a) • Adolescents (Session 1b)	• Gather thoughts about the project • Raise awareness of the drivers of mental ill health and protective factors among adolescents • Present process of co-creation and upcoming activities • Introduce parameters and gather insights on factors to be considered for the co-created solutions • Enable stakeholders to understand their roles, support and involvement in the co-creation and implementation phases • Foster ownership and sustainability of solutions • Increase visibility of the project
Session 2: Use of existing solutions	• Adolescents	• Enable adolescents to discover, use and evaluate existing solutions
Session 3: Creation of solutions	• Adolescents	• Empower adolescents to generate new ideas and concepts (in accordance with their needs) to develop and improve the design • Adolescents co-create their own solutions as a paper-based prototype
Session 4: Prototyping and testing	• Adolescents • Teachers	• Present prototype • Test and evaluate the proposed solutions
Session 5: Development and refinement	• Project team (clinical and tech experts) • Relevant experts from the external community	• Review and critique draft prototype • Search for information resources and develop content relating to each topic with the ideas of adolescents and other key stakeholders in mind • Refine and add local add-ons feature(s) for the solutions
Implementation of co-created solutions by adolescents (10-month period)		

Adolescents were introduced to various existing solutions, including a computer-based platform, clubs, radio-based programmes, outdoor sports, theatre and role-playing, as well as a mood tracker, to serve as inspiration for their collaborative co-creation process. The solution that was co-created by adolescents, supported by teachers and the research team, consists of a blend of digital (a computer-based platform, selected by adolescents from Mhovu, SUA and Magu schools) with in-person activities. The computer-based platform includes an offline digital library with interactive mental health resources. However, at Nyamagana primary school, adolescents opted for a mood tracker as their digital solution. This app enables adolescents to register their daily mood and sleep patterns as well as reflect on the elements that may influence their feelings.[18] The digital component provides foundational knowledge and information, while the non-digital component reinforces learning through physical activities, discussions, debates and creative tasks. Together, they were intended to offer a comprehensive approach to mental health education and support, catering to various learning styles and promoting practical application of knowledge.

Named by students as the Psychology, Resilient Adolescent Minds (RAM) and Happy Path clubs (depending on the school), the intervention comprised seven modules facilitated by teachers, also called 'local mentors'. These teachers possessed fundamental ICT skills, and had taken part in both the baseline study and co-creation workshops. Furthermore, they underwent a comprehensive one-day refresher training encompassing facilitation skills, monitoring, supervision of club activities, and the process of providing feedback to the project team before implementation commenced. Within each school, a club was organised with designated roles including a chairperson, vice chairperson and secretary. Additionally, adolescents were divided into three groups, each led by a designated leader to ensure the effective operation of the club.

At all participating schools, the co-created sessions were conducted on a weekly basis, every Friday, lasting for 1–2 hours each. Given the limited availability of functioning computers within the schools,[19] adolescents utilised both digital and in-person sessions in a rotational manner, organised into 3 groups of 10, over a period of 10 months, from February to November 2022. In essence, it required 3 weeks to complete each session. During this time, each of the 3 groups of adolescents attended a digital session, outdoor sports, and participated in a group discussion, debate or arts creation (poster, poems, songs), as outlined in the session's requirements (Table 7).

18 To be precise, adolescents chose their moods from a range that included feeling happy and excited to feeling depressed and sad, using emoji symbols. Following this, they were prompted to enter the date and time, provide a description of their mood, and save this information. Additionally, they were asked to detail their sleep patterns, including the date, time they went to sleep and woke up, activities before bedtime, and any aids used to facilitate sleep, before submitting the form. Adolescents were also able to track their mood and sleep patterns over time.

19 Each school has a lab with at least 10 functioning computers (a prerequisite for selection, see Section 2.2.1). Adolescents were granted access to these labs during the scheduled digital sessions.

Table 7 Overview of the co-created intervention in Tanzania

Module #	Digital	In-person	#Sessions
1.	Introduction to mental health	Football; rede (a local children's game)[20] & group discussion (understanding mental health)	1
2.	Types of mental health disorders (anxiety, depression, post-traumatic stress disorder (PTSD))	Football; rede; breathing & grounding exercises; mindful walking meditation & word search puzzles (anxiety symptoms & stress reduction)	3 (1@illness)
3.	Drivers of mental ill health & reduced psychosocial well-being	Football; rede & debate (Is mental health more important than physical health?)	1
4.	Stigma, discrimination & mental illnesses	Football; rede; group discussion (dealing with stigma) & debate (Females are more likely to have a mental illness than males)	1
5.	Coping strategies & behaviour (positive & negative)	Football; rede; problem-solving & poem/song creation (promoting mental & emotional well-being)	2
6.	Treatment & care	Football; rede; group discussion (sleep & mental health) & poster creation (counselling relationship)	1
7.	Mental health service support & safeguarding	Football; rede & group discussion (community mental health support systems & getting help scenarios)	1
Total			**10**

3.2 Monitoring, learning, adaptation

For in-person and digital activities, simple registers were developed to track implementation. For the in-person component, we collected data on attendance at each session, its duration, the activities undertaken, and topics discussed; and participant satisfaction (on a scale of 1–5, with students asked to give reason(s) for their rating). For the digital component, we monitored session attendance, the average number of participants logged into each digital solution every month, the average number of times the digital solution was used monthly, the average mood in the app per month (through the mood tracker app), the average time each participant spent on the mood tracker monthly, and user comments regarding their overall experience with the digital solution. This data was presented to the full research team in monthly meetings. In addition to the regular monitoring and tracking of activities, the research team carried out 2 qualitative check-ins or assessments in each school during the implementation period. These consisted of in-depth and group discussion with students, mentors/ facilitators, teachers, local authorities and parents, and aimed to reflect on and adapt the co-created solutions if necessary.

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20   Rede is a famous East African game originally from Tanzania, played during childhood. It involves two players who each try to hit the other with a small ball made of a sock, while trying to avoid being hit themselves.

As a result of both the regular monthly summary and presentation of the monitoring/tracking data at the monthly meetings and the two more in-depth qualitative assessments, we made some adjustments to the intervention. For example, we shifted the day the sessions took place to be more convenient for participants; allowed other students to join the sessions;[21] utilised school assemblies to disseminate key mental health messages more widely; and provided incentives (pens, pencils, soft drinks, sweets, etc.) to motivate adolescent participation.

This monitoring and the check-ins provided opportunities to discuss ongoing challenges and find solutions (for example, reports of old and faulty computers led us to repurpose a small amount of funding to renovate a small number of computers).[22] It also allowed for early assessment of the interventions – for instance, students noted that the in-person sessions worked well, with most rating them 4 out of 5. Reports (in both the regular monitoring and tracking and the more in-depth assessments) included comments that club activities helped students to cope with psychosocial problems and to identify and solve problems at home and school; that their interpersonal relationships had improved; that the songs and poems they created had helped them realise their talents; and that debates and discussions built their self-confidence and gave them an opportunity to express themselves. Some 80% of adolescents reported being very satisfied with the digital sessions, which they found educational, interactive, exciting and entertaining.

3.3 Findings from endline qualitative study of adolescents in the intervention

During the endline qualitative study, we asked adolescents about their participation in the intervention; their reports echoed many of the comments that had been made during the tracking/monitoring as well as during the check-ins.

3.3.1 Attendance patterns and reasons for absence

In terms of attendance, around half of the participants interviewed in the qualitative study – 13 female respondents and 8 male respondents – reported having attended all the sessions. Most of those who had attended all sessions (96/116, or 83%) were based in the schools in Morogoro (56) with the remainder in Mwanza (40) (Table 8). At Magu secondary school, the main reason for low attendance was that sessions were scheduled on Fridays, a day when Muslims attend mosque for prayers. Consequently, local mentors were asked to consider changing the day or time to better accommodate participants. Meanwhile, at Nyamagana primary school, inadequate supervision of sessions played a role in poor attendance. The qualitative interviews provided reasons for missing the sessions, such as 'the timetable was tight', 'my mother was sick' or 'the respondent was sick'. Of this group who missed sessions, male respondents (10) outnumbered female respondents (6).

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21 A minority of these students participated in the endline FGDs but they were otherwise not involved in data collection.

22 We supplied 10 computers to replace existing computers that were incompatible with the digital platform at SUA secondary school (where they remained following the intervention) and repaired 2 computers at Nyamagana primary school.

Table 8 Adolescents' attendance at the intervention sessions

Modules attended	Morogoro		Mwanza		Total	% participation
	Mhovu	SUA	Nyamagana	Magu		
1	29	26	28	23	106	91.4
2	29	27	23	16	95	81.9
3	29	28	20	16	93	80.2
4	29	27	21	21	98	84.5
5	28	28	24	14	94	81
6	28	28	22	14	92	79.3
7	28	28	21	19	96	82.8
All modules (average)	**29**	**27**	**23**	**18**	**96**	**83**
# participants (total)	30	30	30	26	116	
% participation (all modules)	**95.2**	**91.4**	**75.7**	**67.6**	**83**	

3.3.2 Participant perspectives: building bonds and raising awareness through sports

When asked to comment on the intervention, the majority of participants across all four schools reported that it 'was good' because it 'was well presented and taught'. They also mentioned that the intervention helped them build a stronger relationship with their peers through sports, while at the same time becoming aware of mental health issues and the need to educate others in the community. A few participants thought that although the intervention was good, it 'sometimes caused fights during sports', and 'not every member of the group actively participated in the discussions'.

3.3.3 Motivations for attendance and desires to learn

Asked about **their motivations for participating in the intervention**, around half of respondents cited a desire to learn about mental health and educate others as one of their top reasons.

A handful of participants attended sessions so that they could 'wear the sports jerseys provided for sport sessions'. A few respondents attended because they enjoyed collaborating with peers: 'I was impressed with the way we discussed and shared insights with my fellows', whereas others attended because of teacher-provided incentives: 'The teacher was encouraging us and sometimes would buy us ice cream after the sessions'.

Interviewer (I): What motivated you to attend?

Respondent (R): I enjoyed learning in this programme because there were things that I didn't know so when I learn I get knowledge.

I: For example, what didn't you know?

R: For example, depression and anxiety

(IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

3.3.4 Adolescents' reports of positive aspects of the intervention

Participants in the qualitative endline study were also asked **what worked particularly well or what they liked the most**. Twenty-five students cited specific aspects of the in-person sessions (six of whom reported having enjoyed in-person sessions more than those delivered digitally), stating that methods like puzzles encouraged a lot of collaboration and learning: 'It connects us to do something collectively'; 'I liked it because we were getting enough time to conduct discussion together'. Some also liked the interaction between students and teachers, as well as play time during sports sessions: 'I liked the cooperation between us and the teachers as well as respecting other people's opinions'; 'because sports include many people, we play together and enjoy it together'. There was an almost even distribution between the number of male vs female in-depth interview respondents who reported a preference for the in-person sessions. A handful of focus group discussion participants liked in-person sessions because they were 'composing poems', 'collaborating very well among group members, and respecting everyone's opinion'.

> I liked discussion sessions ... because they empowered me to respond to questions well and we were cooperating.
> (IDI with 13-year-old girl in primary school class 7 who led and participated in project activities; lives in Morogoro)

> R4: I enjoyed the games and the group settings where everyone would share their thoughts and knowledge. Eventually, we would arrive at the same conclusions.

> The games brought us joy and fostered friendships. Although this resulted in some of our initial ideas being overlooked, in hindsight, this allowed us to focus on more effective solutions.
> (FGD with adolescent girls aged 16–17 living in Morogoro)

More respondents (32 compared with the 25 who commented on the in-person sessions) stated that they enjoyed elements of the digital sessions. Some stated that it allowed them access to computers for the first time; it also taught them about mental health in fun or interactive ways, improving their understanding: 'It helped me to get experience in using a computer'; 'They were good... because we were learning through cartoons and stuff'.

> I liked the modules [on computer] because we did not know a lot of things. Also, the videos – even if you are tired you can enjoy watching them. They were in the form of animation, and everyone liked them. On top of that, many people preferred to use computers because they enjoyed it a lot.
> (IDI with 17-year-old boy in secondary school form 4 who co-created, led and participated in project activities; lives in Morogoro)

> It is also good because we have learned how to use a computer. We have been instructed how to do it properly like filling in the blanks, inserting dates.
> (IDI with 13-year-old boy in primary school class 7 who led and participated in project activities; lives in Mwanza)

3.3.5 Anticipated popularity of the mental health programme and community involvement

More than half of participants commented that should the programme run again, it would be popular and that more people would attend.

> …I wish that we could re-establish this club so that when you come by you could choose some of the students and together visit our community and raise awareness among community members.
> (IDI with 12-year-old boy in primary school, Mwanza)

Many pointed out that other students had expressed interest in joining the programme after it had started but were unfortunately unable to do so due to spacing. This interest was primarily generated through participating students telling their peers about the activities. In three schools – one in Mwanza and two in Morogoro – the team tested the use of morning speeches or assemblies whereby students involved in the intervention spoke with other students and teachers about mental health. The students were able to confidently share their acquired knowledge and experiences in the project with the rest of the school each month, following completion of the sessions. The implementing team received positive feedback, facilitated through a WhatsApp group established for communication between the in-country project team and teachers. This feedback indicated that this activity was effective in engaging students and teachers who were not directly part of the project implementation. The headteachers in all four schools demonstrated genuine interest in the activities and are awaiting the endline results (Box 3).

Box 3 The interest and involvement of school headteachers in Mwanza and Morogoro

All school headteachers expressed considerable interest in the project approach and eagerly anticipate the findings from endline data collection. During conversations with them, the research team discovered that they had observed positive changes in students' behaviour since the intervention. Moreover, participating in and observing the project activities had increased their own understanding of mental health and well-being. Some headteachers mentioned that mental health discussions have even been introduced in parent–teacher association (PTA) meetings, representing a novel topic for all participants. Notably, the school headteachers expressed a strong desire to continue discussing mental health in their schools and to actively champion the issue. In Morogoro, several teachers have also shown interest in extending the school clubs beyond the project's completion, with their headteachers' wholehearted support. These signs of change are significant because of the central role of headteachers as key actors in implementing new interventions and activities, connecting and mobilising teachers and adolescents, and supporting and enabling the uptake of project learning.

In both Mwanza and Morogoro, the team observed that students who were not part of the intervention were asking to join the activities, suggesting that the project was generating interest in the schools. To avoid interfering with the research results, the team suggested they join non-tech activities such as school sports clubs. In Mhovu primary school, some teachers and parents asked the team to conduct such club activities (especially sports) outside of school hours to limit the possibility of students becoming involved in negative behaviours. The team heeded their request and began running such activities. The team also noticed that the random sampling of participants during the research phase identified four students who were in need of mental health support, so they referred them to the local project mentor to assist them.

Both male and female participants in the intervention also raised the importance of involving the wider community to raise awareness more broadly around mental health.

> In order for the programme to be popular, the community should also be involved. For example, here at school we prepared poems, and I wrote a series. In order for this programme to be popular we should prepare road shows that will involve community members so that we can provide education.
> (IDI with 19-year-old young man in secondary school form 4 who co-created, led and participated in project activities; lives in Mwanza)

3.3.6 Communication with and awareness of mental health interventions of other stakeholders

When asked during interviews **whether and who they had spoken to about the intervention**, the vast majority of participants confirmed that they had spoken to someone about the programme before participating. More than half of them said they spoke to their parents.

Many students continued to communicate with their parents about the programme and its activities (Box 4). Such communication has helped to spread information about mental health and well-being, which is not usually a topic of discussion in families and communities. Whereas adolescent boys reported feeling more comfortable discussing the programme with their mother, most adolescent girls were equally comfortable speaking to their mother or both parents. A few spoke to their fathers to share what they had learnt: 'I once told my father because one day he was not okay, he was stressed so I talked to him...'

Adolescent participants were encouraged to share their learning at home and within the school. Indeed, half of the participants confirmed that they had spoken about the programme to other relatives, typically grandparents, siblings, aunts and uncles. The majority of participants also confirmed that they had either spoken to friends or heard friends talking about the programme. Some respondents said they either spoke to their teachers or had heard them talking about the programme. And some respondents confirmed that they either spoke to or heard a community member talking about the programme.

Box 4 Students from Magu secondary school, Mwanza, communicate about mental health with their families and communities

During the May 2022 check-ins in Mwanza, the research team observed that some students participating in the digital and non-digital components were sharing information and insights about their activities with their families and friends. This communication prompted a broader sharing of information regarding mental health and well-being – topics that are not usually discussed openly. For instance, one student from Magu reported to the team that he had confided in his mother about his anger issues. The research team may have fostered an environment conducive to sharing experiences by actively encouraging students to talk about their participation in the intervention and emphasising that these students were their peers in the experimentation process.

The vast majority of participants who had spoken to someone, or overheard discussions about the programme, reported that their responses were generally positive and supportive. A handful of the intergenerational trios, whose children had participated, expressed their support for the programme ('Yes, if there were other courses I would like him to participate') because they not only viewed it as a great learning opportunity, but also thought that lessons learnt from the sessions would benefit the family as well.

Because I liked her to learn about mental health so that it can help her and be supportive to our family. Whenever someone faces such a problem [name of the nodal adolescent] will be like our teacher. She will lead and instruct us. So, it is beneficial if she learns about it... I really encouraged her to continue attending the sessions so that she can learn more and more.
(IGT with 53-year-old mother of 12-year-old girl who co-created, led and participated in project activities; lives in Mwanza)

She expressed her desire to excel in her studies and achieve her dreams with the blessings of God. I reassured her of my support for her involvement in the intervention and pledged to be by her side every step of the way, ensuring she encounters no adverse influences.
(IGT with 60-year-old father of 17-year-old girl who co-created and participated in project activities; lives in Mwanza)

More widely, some focus group discussion respondents – adults and children, some of whom had not participated in the programme – were aware that it centred around mental health awareness, its symptoms, causes and treatment and/or learning how to live and interact with each other in the community: 'I heard that there are people who come to provide advice on how to cope with problems, how to live with people and how to live your life'; 'It is about educating children'; 'I heard that it involved mental health and how to deal with mental ill health'.

> R: Personally, I was happy because they are helping my child and other children who are close to my child. It is possible that there are other children who are going through some problems but since my son is aware about the mental health programme, he may help them.
> (FGD with mothers living in Mwanza)

For a handful of focus group discussion respondents (adolescents as well as parents), this interview was the first time they had heard of the intervention ('Today is the first time I hear about it').

Other stakeholders such as local authorities and local medical institutions had expressed interest in the intervention, participated in it, and even expressed plans to continue investing in mental health resources. Government officials expressed interest and actively engaged with the project. Two Ward Education Officers from Mwanza and Morogoro who joined the co-creation workshop expressed their hopes to scale up the interventions to the community level. Another Regional Social Welfare Officer from Mwanza, who also attended the workshops, said that she plans to engage other interested stakeholders to address mental health issues in the community (Box 5).

Box 5 Linking with line agencies

The research team actively engaged with the Ward Education Officer responsible for SUA secondary school during check-ins because the headteacher and other teachers report to that officer, and the person in that role significantly influences school activities and discussions among teachers and students. The officer was invited to observe certain activities during the co-design phase of the intervention, and the team plans to invite her again to share final results.

Two Ward Education Officers (Mwanza, Nyamagana primary school) and Morogoro (SUA secondary school) have also expressed plans to scale up interventions to the community level. Resource constraints may be an issue when it comes to translating these plans into activities. Nevertheless, these line agency staff engaged in the intervention by participating in both the baseline and endline evaluations. They also joined co-creation workshops and attended some of the club's sessions. Throughout their involvement, they personally witnessed positive transformations among students, both academically and socially. These observations strengthened their belief in the effectiveness of the intervention and its value to the students' overall development. As a result, the staff are committed to continuing the intervention.

In Mwanza, one Regional Social Welfare Officer plans to engage interested stakeholders to address mental health challenges collectively. The research team contributed to this outcome by inviting the officer to participate in the co-creation workshops. During these workshops, she gained valuable insights into the prevalence of mental ill health and psychosocial problems in her catchment area. The workshops gave her a deeper understanding of the challenges facing the community and the importance of addressing mental health issues.

Significantly, cooperation emerged between the project team and primary healthcare workers in Mwanza through the Magu district council (Box 6, Box 7). The project team worked closely with the District Medical Officer and the Medical Officer In-Charge of the Magu district hospital to emphasise the importance of the mental health unit. Since then, many primary healthcare workers have received extensive training in diagnosing, managing and referring mental health cases. At the start of the project in Mwanza (Magu), the local hospital did not have a functioning mental health department or ward. It had been included in the organigram of the local hospital, but it was not funded and therefore not operating. During the check-in, in May 2022, the team learnt that the local hospital management had opened a functioning mental health department/ward. This capacity-building and strengthening of the mental health system has played a crucial role in raising awareness about mental health and reducing stigma. While these changes likely cannot be attributed to the project alone, there is evidence that the work of the intervention team contributed to and influenced this increased investment in mental health resources (Box 8).

Box 6   Mental health providers are conscious and informed about adolescent mental health needs

At baseline and endline, mental health providers acted as key informants in qualitative data collection. They actively participated in co-creation workshops, with one provider contributing to developing the content of the digital intervention. Currently, in Mwanza (Magu secondary school) and Morogoro (SUA secondary school), these providers collaborate with schools, parents, health facilities and other stakeholders to establish a robust support network for adolescents. This collaboration has enabled providers to gain a deeper understanding of adolescents' mental health needs, and provided an opportunity to enhance adolescents' emotional well-being and resilience.

Box 7   Improvements in perceptions of mental health services

In one of the project locations, a clinical psychiatrist faced bullying and derogatory remarks from colleagues and community members (including hurtful names like 'insane' and 'crazy') due to this individual's specialisation in psychiatry and mental health. The project team intervened, closely collaborating with local government authorities, including the District Medical Officer and Medical Officer In-Charge of Magu district hospital, to highlight the importance and priority of the mental health unit. Through these collective efforts, the project team successfully created a more supportive and respectful environment, allowing the clinical psychiatrist to continue their work with dignity and dedication.

Box 8 Engagement contributing to the opening of a mental health ward in Magu, Mwanza

At the project's inception in Magu, Mwanza, the hospital lacked a functioning mental health clinic, even though this was incorporated into its organisational structure. Due to a lack of funding, the ward remained non-operational. However, during the May 2022 check-in, the research team learnt that the management of the local hospital had decided to open the mental health ward, marking a significant milestone for youth and the entire community in Magu. Now, they have access to a dedicated unit, and a skilled team focused on mental health and well-being. While the research team acknowledges that they cannot solely attribute this decision to the intervention, they believe that it might have played a part in influencing it.

For instance, at baseline, the research team met with the local health line agency and clinicians to explain the intervention's purpose and inquire about the availability of mental health facilities in Magu. They also interviewed a clinical psychiatrist who had requested a transfer to another district as this individual was working instead as a dentist at the district hospital. The research team actively involved district medical staff and authorities during the co-creation process for the digital and non-digital components. These stakeholders not only learnt about the intervention's objectives and critical insights into mental health issues in the district, and the availability (or lack thereof) of referral points, but they also participated in discussions to co-design the solutions that would be tested in the local schools.

Throughout these meetings and discussions, it was clear that there was a pressing need for mental health services within the community and a dedicated clinic at the local hospital. This clinic is now fully operational, providing essential services and support to those in need. Primary healthcare workers, including nurses and clinical officers, have received extensive training to effectively diagnose, manage and refer mental health cases. This capacity-building has been crucial in raising community awareness about mental health, reducing stigma, and dispelling misconceptions linking mental ill health to witchcraft. The research team believes that their extensive early engagement with stakeholders was one of the contributing factors that ultimately led to the opening of the mental health ward at the local hospital.

Apart from government officials, teachers in neighbouring schools in Mwanza and Morogoro have expressed interest in running similar mental health interventions in their schools. This may indicate a broader recognition among educators about the importance of mental health and a desire to acquire the skills necessary to support their students' well-being.

3.3.7 Adolescents' perceptions of the integration of the digital and in-person components

When asked what **worked less well or what students did not like about the intervention**, a number of responses emerged, also coinciding with what we learnt from the regular monitoring

data and the qualitative check-ins. Some respondents, both in the individual interviews and in the focus group discussions, reported a disconnect between the content of the digital and in-person sessions, partly attributing it to facilitators not adhering to the session implementation schedule. One respondent stated that, 'I expected that we will be discussing things [in the in-person sessions] that we learn in digital sessions'. Additionally, at Nyamagana primary school, adolescents opted for the mood tracker as their digital intervention. However, they implemented the in-person intervention in a way that aligned with the practices of other schools, incorporating activities beyond just outdoor sports such as football and rede. This approach aimed to deepen their understanding of mental health but unintentionally resulted in a perceived sense of disconnection. A few respondents felt that there was minimal participation during the group discussions: 'Sometimes when a teacher was telling us to go do group works, other participants didn't participate fully but we were writing their names on the attendance list'; 'others were not attentive'.

> **R2: You are there as a group discussing something, others never say a word until the end of the session...**
>
> **R5: Because their understanding was low.**
>
> (FGD with adolescent boys and girls aged 11–14, who are also student government leaders at their primary school in Mwanza)

Respondents also raised some issues with computers, including a shortage of computers. Some said that computers were 'small', some had technical issues with videos ('most of videos were not playing'), and some reported power disruptions. Though teachers were tasked to facilitate, monitor and supervise sessions, other respondents mentioned that they had inadequate guidance and feedback on their work, while others still observed that their peers just used the computers to play 'other games'. Regarding the sports activities, some students commented that those who had previously not played the game before had difficulties joining, while others indicated that time spent on sports activities was insufficient compared to the time spent in the computer room.

3.3.8 Barriers to attendance in the sessions

Sessions were conducted within school hours, making use of available free periods, sports or religious sessions. Various **barriers to attendance** were mentioned, again echoing findings from the tracking, monitoring and check-ins. First, as confirmed by both KIIs and students, for some students, the sessions clashed with other classes and activities. Others said that when their classes over-ran, teachers would not allow them to leave to attend the club sessions.

> **There were clashes – for instance, if we attended the mental health session the routine sessions were ongoing in the class. So, we would ask for permission from the teacher and come to attend the mental health session, then we went back to the classroom.**
> (IDI with 13-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

A handful of students spoke about having too much schoolwork to be able to participate or,

similarly, they arrived late due to the need to finish their schoolwork. Others mentioned that because the clubs (initially) were run on a Friday, it clashed with other sports activities. One focus group participant mentioned that they faced challenges with obtaining the sports gear or equipment needed to participate. However, this had been resolved: 'There was a challenge, but they already solved it, we didn't have sports gear'. One female participant was not allowed to attend by her parents – it seems her mother told her to 'stay at home' given she had 'no money for the bus fare'. Lack of transportation funds was also mentioned by others as a barrier to attendance, when instructors would arrange additional sessions outside of class hours or on weekends to make up for missed sessions (e.g. owing to power outages, exams, etc.). Other barriers included caring responsibilities. One 13-year-old boy missed a session as he had to look after his siblings when his mother went to hospital. Others missed sessions because they were unwell or had to attend a funeral.

Some participants reported that they did not encounter any barriers to attendance. A 13-year-old girl noted that: 'After informing at home, they allowed me (to attend)'. A handful of participants involved in an intergenerational interview (mother, aunt, sister, brother) confirmed a lack of barriers to attendance, with some also mentioning that they did their chores for participating students so that they had time to attend.

However, a handful of adolescents reported that parents, guardians or others in the community held negative perceptions of the programme or were generally unsupportive. According to a 13-year-old boy from Mwanza: 'I told my father on Saturday I have to go to school, and he told me to go, "but if you come back, I will beat you"'. A few adolescents both in individual interviews and focus group discussions stated that they received negative feedback or received no support from people they told about the programme given its focus on mental health, pointing to the stigma that still surrounds mental health issues.

> They laugh because of the word 'mental'. It is like someone who has mental disability but when we were educating them at the school assembly, they were learning something and somehow they stopped laughing at us.
> (IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

> R2: My friends didn't support me because when a teacher was coming to say that people who are in the mental health programme are needed, most people in the class were laughing thinking that all people in the mental health programme are mentally unstable or they are crazy people. Sometimes they were telling us that, 'you crazy people you are needed'. So, they didn't support us.
> (FGD with adolescent boys and girls aged 15–17, who are also student government leaders at their secondary school in Morogoro)

4 Effects of the intervention on mental health literacy: knowledge and awareness

We now turn to the empirical analysis of changes observed between baseline and endline, and how these differed between the control and intervention arms of the study for different population groups. This chapter introduces the analysis through a focus on the direct impact of the intervention by measuring its effects on mental health knowledge and awareness. Section 4.1 summarises observed changes between the baseline and endline surveys on three key scales: emotional literacy; knowledge of what is good for mental health; and knowledge of sources of relevant information. Drawing on the qualitative analysis, Section 4.2 complements this analysis with participant reports of what they have learnt through the intervention, and their knowledge of mental health services.

4.1 Emotional literacy, knowledge and awareness

We begin by highlighting key results that emerged from the quantitative analysis of mental health awareness indicators. We assessed mental health literacy using the 14-item scale focused on emotional literacy, the 10-item scale measuring knowledge of contributors to good mental health and the 4-item subscale on knowledge of where to seek information on mental health from the Mental Health Literacy Scale (see Chapter 2, Table 4). In brief, we found that the intervention had a high and statistically significant effect on all these three indicators; moreover, the gains among the treatment group were markedly higher than among the control group (Table 9). To better understand the results, we look in greater depth at each of these scales, distinguishing the impact of the intervention on different population groups.

Table 9 Differences in key indicators of mental health awareness between baseline and endline, treatment and control groups

a. Treatment group

	Baseline	Endline	Change (%)	p-value
Emotional literacy	2.60	3.01	15.8	0.000
Knowledge of what is important for good mental health	3.15	3.45	9.5	0.000
Knowledge of where to seek information subscale	3.08	3.6	16.8	0.000

b. Control group

	Baseline	Endline	Change (%)	p-value
Emotional literacy	2.56	2.71	6.1	0.000
Knowledge of what is important for good mental health	3.03	3.20	5.8	0.000
Knowledge of where to seek information subscale	2.96	3.16	7.0	0.000

Our endline data suggests some marked improvements in emotional literacy throughout the student population. Overall, the scale increased by 15.8% for the treatment group compared with 6.1% for the control group. Our analysis shows that the intervention had a strong and significant impact on the emotional literacy of participants across all population groups (Figure 1). The effect is strongest for those starting from a lower level, including older students (increase of 18%), girls (increase of 17%) and those in the lowest SES tercile (increase of 25%). Our regression analysis reinforces these encouraging findings, showing that after controlling for age, gender, region, SES and hunger:

- being assessed at endline, as opposed to the baseline, is associated with an increase of .1491 points in the emotional literacy score of control group adolescents ($p<0.001$);
- at baseline, there is no statistically significant difference in emotional literacy scores between the treatment and control groups ($p=0.991$);
- for those in the treatment group, being assessed at endline (as opposed to baseline) is associated with an additional increase of .2421 points in the emotional literacy score, above the main effects of being in the endline or treatment groups ($p=0.007$).

In other words, the treatment group experienced a greater increase in emotional literacy scores from baseline to endline compared to the control group, suggesting the intervention had a positive impact (see Annex 9 for full regression results).

Figure 1 Emotional literacy: changes among population groups between baseline and endline, treatment and control groups
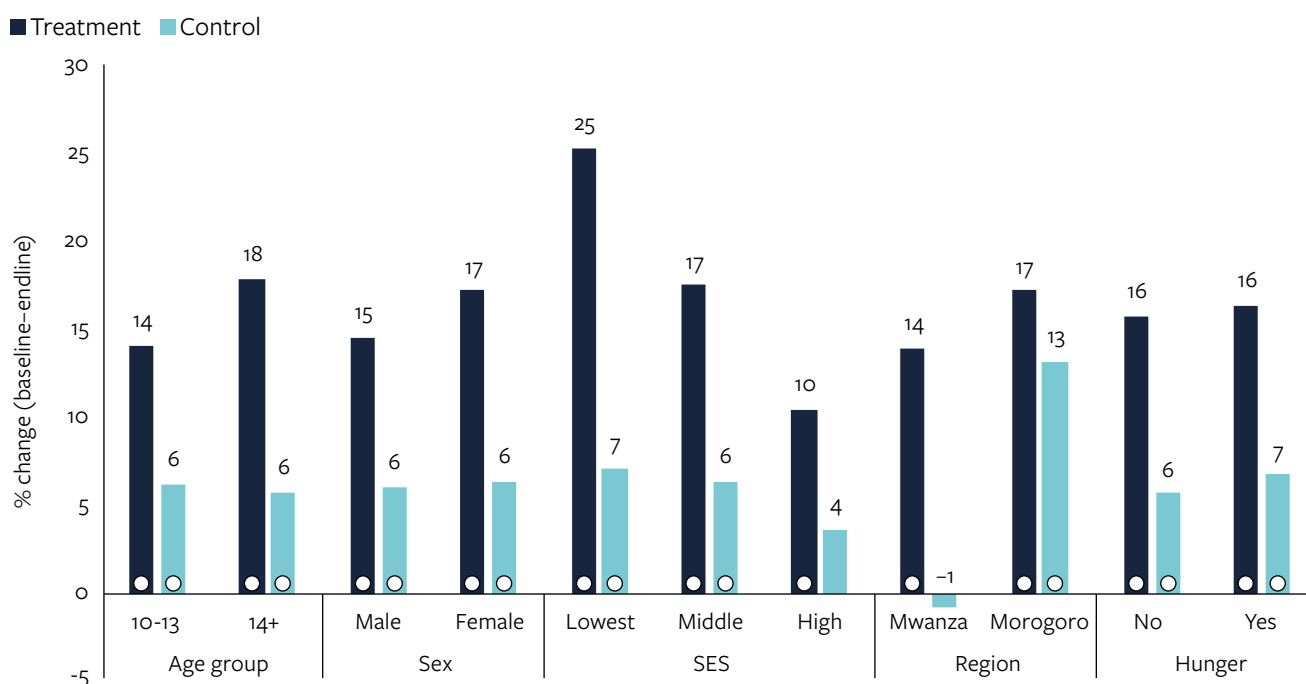
Note: Circles denote statistically significant changes ($p<0.05$).

Figure 2 Knowledge of what is good for mental health: changes among population groups between baseline and endline, treatment and control groups
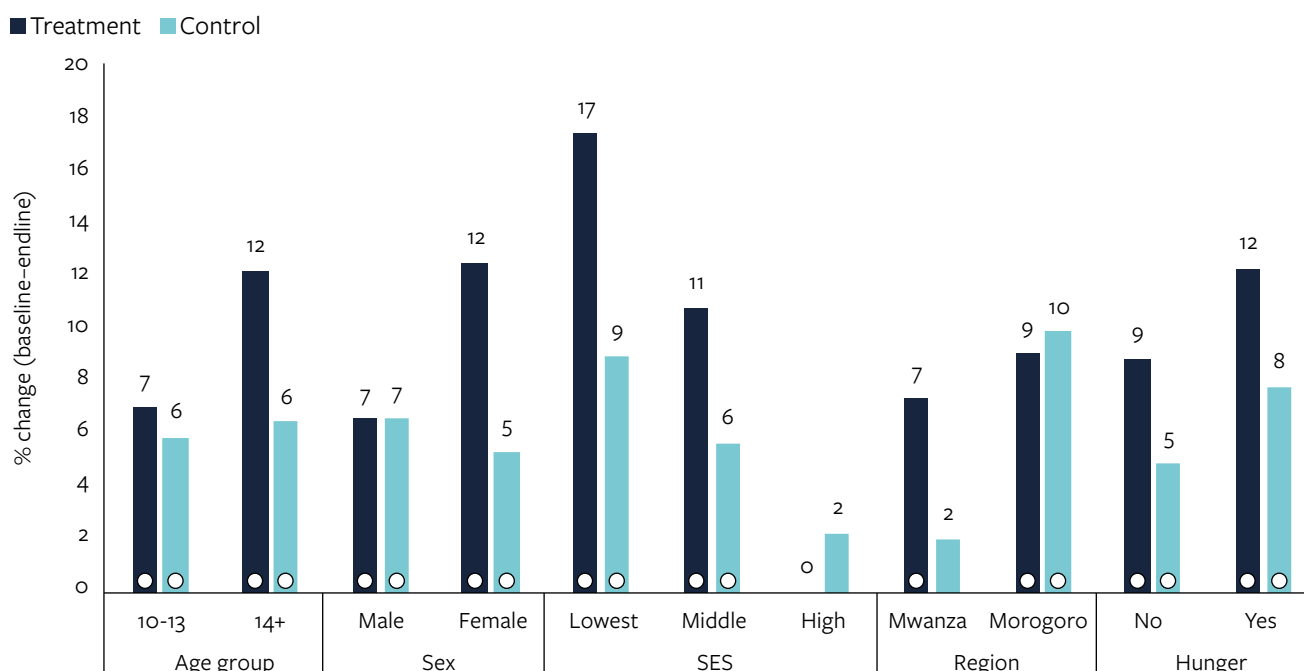
Note: Circles denote statistically significant changes (p<0.05).

The knowledge of what is good for mental health scale showed positive, albeit more muted, results: the treatment group experienced an increase of 9.5% compared with 5.8% for the control group. The shift among intervention participants was positive and statistically significant across all population groups (except those in the high SES), and highest for those in the lowest SES (increase of 17%), girls (increase of 12%) and the age 14+ group (increase of 12%) (Figure 2). The increases among adolescents in the treatment group were higher than for those in the control group across categories, except for boys (where the increases were equal). Our regression analysis finds that, controlling for the socio-demographic characteristics, being assessed at the endline (as opposed to the baseline) is associated with an increase of 0.2014 points in the knowledge score (p<0.001) and that being in the control group is associated with a higher score of

about 0.1582 points (p=0.043). The coefficient for the interaction between the time dummy and the treatment group (0.0160, p=0.866) is not statistically significant, suggesting that the additional change in knowledge scores from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment groups, is not significantly different from the change observed in the control group.

Our final measure of mental health literacy considers the extent to which the intervention affected knowledge of where to seek information on mental health. The gain among intervention participants (17%) is markedly higher than that of the control group (7%). Here, the results again point to strong gains for intervention participants across population groups, notably those experiencing hunger in the previous year (gain of 34%), girls (gain of 22%), and those

aged 14+ (gain of 22%) (Figure 3). Our regression analysis further affirms the positive role of the intervention. It finds that, controlling for the socio-demographic characteristics:

- knowledge of where to seek information increased 0.1855 points from baseline to endline, for the control group (p<0.001);
- at baseline, there is no statistically significant difference in knowledge of where to seek information between the treatment and control groups (p=0.208);
- for those in the treatment group, being assessed at endline (as opposed to baseline) is associated with an additional increase of 0.2586 points, above the main effects of being in the endline or treatment groups (p=0.034). In other words, this evidence suggests the treatment group experienced a greater increase in their knowledge of where to seek information from baseline to endline compared to the control group.

4.1.1   Participant perceptions of mental health awareness pre- and post-intervention

At baseline, the qualitative research pointed to a limited understanding (among adolescents and adults in their family and the wider community) of what constitutes mental health and psychosocial well-being, such that people with mental health problems were stigmatised (some young people were more likely to attribute mental health problems to drug use, whereas adults associated mental ill health with witchcraft). The quantitative research affirmed this relatively low awareness – for instance, over half of baseline survey respondents (56%) expressed agreement that 'people with a mental illness are dangerous' while some two-thirds (64%) agreed that 'a mental illness is not a real medical illness'. These views were distributed uniformly across population groups; only socioeconomic differences emerged as statistically significant correlates of emotional literacy, with respondents from better-off households showing higher literacy.

Figure 3   Knowledge of sources of information-seeking: changes among population groups between baseline and endline, treatment and control groups
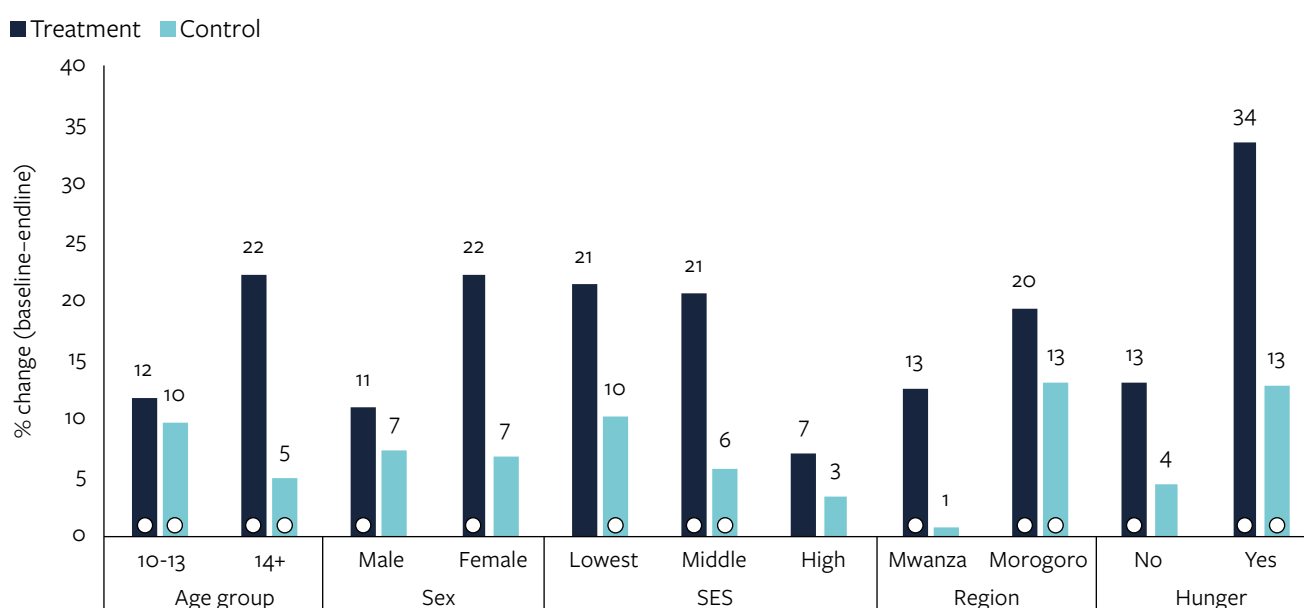
Note: Circles denote statistically significant changes (p<0.05).

> Most of them [community members] believe that people with mental health problems have been bewitched. You may find that a young man is using marijuana, but people will still insist that he has been bewitched. Most people in this community, they believe in witchcraft. They believe every problem is caused by witchcraft.
>
> (KII 9, Morogoro)

In addition to limited knowledge of mental health, our baseline qualitative research uncovered a perception that mental health challenges were increasing. Reasons included youths being more likely to engage in 'illicit behaviour', poverty, lack of resources to continue studying, or the government's war on drugs.[23] Negative perceptions among community members towards mental health were related to beliefs around witchcraft or curses. According to key informants, beliefs about people with mental health problems being 'cursed' largely explained why individuals did not feel confident sharing mental health problems or challenges openly, or seeking help for mental ill health.

When students were asked at endline what they knew about mental health before taking part in the intervention, more than half of boys and girls in both study sites reported little or no awareness. One adolescent girl stated that anytime they noticed someone being unusually silent or isolating themselves from the group, they presumed that was their personality. It never occurred to them that mental health issues could be affecting that person's behaviour. However, their involvement in the intervention and subsequent gains in confidence fostered their

acquisition of knowledge about mental health. This newfound understanding was not limited to the students themselves but also extended to their siblings, parents, friends, and others within their family, school and community networks.

> I knew nothing about mental health before the programme.
>
> (IDI with 16-year-old girl in secondary school form 4 who led and participated in project activities; lives in Morogoro)

> There are only a few community members who know about mental health. My young sister tells them about mental health when she is back from school.
>
> (IGT with 16-year-old brother of 12-year-old girl who co-created, led and participated in project activities; lives in Mwanza)

A few adult respondents also admitted knowing very little about mental health prior to their participation in the co-creation process. These findings align with existing research that highlights a general lack of understanding about mental health and mental illness. Studies conducted by Ambikile and Iseselo (2017) and Kutcher et al. (2019) emphasise poor awareness and recognition of mental health disorders and symptoms. This lack of recognition often leads to untreated conditions, as individuals may not understand that their symptoms are related to mental health issues. In such cases, people tend to rely on traditional healing practices, and access to professional support remains limited (Kutcher

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23 A new Drug Control and Enforcement Act was enacted in 2015, which led to the establishment of the Tanzanian Drug Control and Enforcement Authority. Its main role is to curb the supply, demand and harms associated with drug use.

et al., 2016). By engaging in the co-creation process, the adult participants had the opportunity to gain knowledge about mental health, challenge existing misconceptions, and learn about available professional support and resources.

> ... in society ... when you mention AIDS and malaria, everyone understands ... but this issue of mental health, many people's understanding has been low ... I have come to know about mental health after attending that seminar. I now understand that it is a big problem in our society, but many people don't know about it.
> (KII, administrator and chaplain, Mwanza)

In terms of awareness of **specific mental health illnesses**, a few adolescent girls (when asked at endline) mentioned that they knew about stress and depression before participating in the intervention. This prior knowledge served as a starting point for further education, and the intervention helped enhance their understanding of mental health, to include more specific conditions.

> Before this programme, I used to hear about depression. But I did not know it in detail.
> (IDI with 18-year-old young woman in secondary school form 4 who took part in non-digital project activities only; lives in Mwanza)

Furthermore, the qualitative sample of older adolescent boys and girls in both sites indicated an increase in awareness regarding sadness as a symptom of mental health disorders. This finding suggests an improved understanding of the signs and symptoms of mental health issues among older adolescents, potentially facilitating early identification and intervention.

> I have gained valuable insights that have taught me how to prevent feelings of depression, avoid isolating myself, and embrace the importance of social connection.
> (IDI with 14-year-old girl in primary school class 7 who led and participated in project activities; lives in Morogoro)

This newfound knowledge extended to the drivers of mental ill health. Some adolescent boys and girls in both sites specifically identified quarrels, insults and substance use as triggers for mental illness. They attributed an increase in their awareness to participation in the intervention.

> I didn't know quarrels and insults could cause mental illnesses, but the programme enhanced my understanding and I decided to share this with my family at home.
> (IDI with 12-year-old girl in primary school class 7 who co-created, led and participated in project activities; lives in Mwanza)

> I have learnt that engaging in behaviours such as alcohol consumption, marijuana use, and drug injection can cause depression in adolescents.
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

A handful of adult respondents acknowledged that adolescents and adults both experience stress. However, when asked about the causes or drivers of stress, they provided distinct responses related to age. For adults, the respondents identified poverty and the inability to meet their own needs as well as those of their loved ones as significant

stressors. In contrast, adults highlighted early sexual encounters and instances of sexual abuse – often occurring within the home – as triggers for stress among adolescents. Furthermore, they argued that adolescents who engage in early sexual relationships that result in teenage pregnancies face high stress levels, often due to abandonment by their parents or family. During the KIIs, some respondents (including teachers and mental health professionals) specifically identified academic pressure, failure to impress parents, and other family-related concerns as factors contributing to adolescents' negative coping strategies, such as alcoholism or drug abuse. The involvement of adults in the co-creation process was crucial in improving population-wide knowledge of the potential drivers of mental illnesses.

> It's quite difficult to talk about mental health and psychological challenges because I'm not an expert. But I think mental stress can lead to mental health problems. The driver of this is mostly hard life, but among the adolescents that I come across, having complex responsibilities such as teen pregnancies… Sometimes, when a girl gets pregnant, they lose support from parents…
> (KII, Director, Morogoro)

> Adults are stressed because of lifestyle. Obviously, a single parent may suffer from mental health problems because she takes care of a child/children alone. She can't afford to pay for school fees and other school-related expenses such as remedial classes, a parent can't buy her child a good school bag, a child does not have all exercise books, and there is not enough food at home. Another thing is the separation of parents…
> (KII, Ward Education Officer, Morogoro)

4.2 Attitudes towards people with mental health problems

In Tanzania, people with mental health problems often face stigmatisation and discrimination, further undermining their well-being. Such societal attitudes can perpetuate the cycle of exclusion, hinder access to essential resources and sources of support, and impede the recovery process. This subsection therefore explores the prevailing attitudes towards people with mental health problems and the impact of the intervention on those attitudes.

4.2.1   Stigmatisation and discrimination

Respondents in the qualitative component were asked about their attitudes and reactions to people with mental health problems, at baseline and endline. The findings reveal a diverse range of responses, reflecting the varying perspectives and attitudes among participants.

More than half of the respondents, adults and adolescents, confirmed that despite some overall improvement, **stigmatisation and discrimination** against mental health issues are still prevalent in both Mwanza and Morogoro. They indicated that mentally distressed individuals are often referred to as 'crazy', 'insane' or 'drug addict'. These negative reactions often came from teachers in schools, students, family members and the wider community. Commonly cited reasons for discrimination included ignorance or a general lack of mental health understanding, and fear of HIV infection. The Tanzanian literature suggests that HIV-positive status is significantly associated with mental health symptoms such as depression (Lwidiko et al., 2018) or anxiety (Kuringe et al., 2019). This is partly due to stigma from community members and peers, but also due to chronic domestic abuse and financial stressors

that restrict access to medical care and education (Ramaiya et al., 2016). Individuals who contravene social norms (with behaviours such as drug or alcohol misuse) also face negative reactions from the community.

> Sadly, individuals with mental health issues are often neglected and labelled as 'drug addicts' without considering their need for support and guidance. The community fails to realise that these individuals require close companionship and counselling in order to initiate a gradual change and ultimately overcome their challenging circumstances. Instead, they are ignored by the community.
> (KII, Ward Education Officer, Morogoro)

Some adolescent and adult respondents reported that people facing mental health challenges are variously **devalued, treated with disdain, and isolated** – the latter being mentioned more frequently in Morogoro than in Mwanza.

> R3: People facing mental health challenges in the community are often devalued, with their worth disregarded. A prime example of this is when someone goes against the cultural norms of the community, resulting in disdain and animosity towards them.
> (FGD with adolescent girls aged 11–13 living in Mwanza)

> R7: In my area, individuals facing mental health problems are often subjected to isolation due to a lack of awareness. When community members encounter someone

> exhibiting confusion or distress, they tend to attribute it to beliefs of being bewitched or cursed by someone.
> (FGD with adolescent girls aged 16–17 living in Morogoro)

A small proportion of adolescents and some adults indicated that society **ignores or neglects** people with mental health problems. In contrast to the responses given above, this observation was made by a roughly equal percentage of respondents in Morogoro and Mwanza.

> When individuals are dealing with mental illness, their appearance can undergo changes, sometimes they become shabby. Unfortunately, rather than helping them, people would just stare at them and some would just ignore them, which can further exacerbate the problem. So, if the community was aware, then it would have helped improve mental health status.
> (KII, psychiatric nurse, Mwanza)

By contrast, some adolescent and adult respondents reported that some community members provide **various types of assistance** to people struggling with mental health issues, such as taking them to the hospital for expert care or giving them menial employment to help them make ends meet. Furthermore, some community members engaged with those individuals in order to determine the main reason for their problems, show them kindness, and provide them with helpful advice or counsel. The majority of respondents who said that community members sometimes offer help were from Mwanza.

> Yes, some decide to bring people with mental health problems to the hospital. They usually go to Sekou Toure hospital.
> (KII, District Mental Health Coordinator, Mwanza)

> In our community, we actively engage adolescents in various activities that involve the participation of all citizens within the neighbourhood. These activities often serve as a means of generating income. Interestingly, even adolescents who are experiencing mental distress can contribute through practical tasks such as mixing concrete or doing other manual labour. While they may look crazy at first glance, they possess the ability to perform these tasks when given the opportunity.
> (KII, street chairman, Mwanza)

A few adult and adolescent participants commented that some people are **indifferent towards people who have mental health issues**, treating them the same as any other person. They noted that others turn to violence and are physically abusive towards people with mental ill health.

> R1: They can either help and treat them like other normal people or chase away a person with a mental health problem. Others beat them.
> (FGD with adolescent boys aged 11–13 living in Mwanza)

4.2.2 Effects of the intervention on attitudes towards mental health

Our findings indicate that engaging the appropriate adult stakeholders in the co-creation process and engaging adolescents in the design and implementation of the intervention led to a notable improvement in attitudes towards mental health issues. This inclusive approach not only enhanced participant interest in the programme but also had a positive influence on non-participants.

One theme emerging from the conversations was the diminishing stigma associated with mental ill health as well as enhanced mental health support in schools and communities following the intervention. Adult and adolescent respondents both remarked that the stigma associated with seeking mental health treatment has significantly lessened since the start of the programme, particularly among Morogoro residents. Study respondents attributed this to mental health education provided through the intervention, which led to better parent–child and teacher–student relationships, among other things. This effect has fostered an environment in which adolescents feel more secure and able to ask for help or to engage with mental health services. A notable example came from an adolescent girl who, emboldened by her involvement in the programme, was able to disclose an ongoing incident of sexual abuse to her teacher. This pivotal disclosure initiated a critical process of getting her the requisite medical and mental health support.

> Yes, there has been a change. Nowadays, when a teacher summons us to attend the mental health club, our peers no longer ridicule us. The majority of people are now aware of our programme and understand its purpose. The only students who may not be familiar with the programme are those who recently joined in form 1 this year.
> (IDI with 17-year-old girl in secondary school form 4 who co-created and participated in project activities; lives in Mwanza)

> R1: In communities where mental health education has been provided, I can confidently state that stigma is decreasing. But in communities where this education has not been received, stigma will persist and is unlikely to diminish.
>
> R2: Stigma is decreasing because nowadays parents are very close to their children, unlike in the past.
>
> (FGD with mothers living in Morogoro)

A few adolescent participants and two adults observed no change in stigmatisation of people with mental ill health. According to an adolescent boy at SUA secondary school in Morogoro, stigma was non-existent both before and after the intervention. By contrast, a young girl at Mhovu primary school, also in Morogoro, indicated that stigma existed and still exists in the community today. However, the two adult respondents stated that little has changed as a result of the programme because education is still limited, and many people fail to appreciate the need for mental health awareness.

> No, people haven't changed after this programme. They haven't stopped stigmatising those facing mental health challenges.
> (IDI with 12-year-old girl in primary school class 7 who participated in project activities; lives in Morogoro)

> Impressions haven't changed as a result of the programme. Honestly, people are not educated.
> (IGT with 26-year-old sister of 12-year-old boy who led and participated in project activities; lives in Morogoro)

A few adults and adolescents reported that they believe stigma around mental ill health has worsened over time, with the intervention seemingly having no effect. They attributed this worsening situation to limited mental health awareness, as well as an increase in substance abuse by youth (marijuana and alcohol). In a focus group discussion, one father stated that the community now views discipline as child abuse, and so parents can no longer discipline their children. This leaves them to indulge in harmful behaviours such as drug-taking or early sexual relationships, which can eventually lead to depression and expose them to more stigma. Six of the eight respondents who thought that stigma has worsened since the programme began were from Morogoro.

> R2: Stigma is increasing. For example, some adolescents don't listen to their parents, they get involved in sexual intercourse acts.
>
> R4: Stigma is increasing because as people keep on doing bad things, the community keeps on hating them, they treat them as if

> they don't have any value – for example, when they drink alcohol or smoke marijuana. So, the community just decides to ignore them.
>
> (FGD with adolescent girls aged 11–13 living in Mwanza)

> R4: Stigma has been increasing to a large extent because when a person becomes a drug user, he may do unacceptable acts in the community like rape. This will result in being jailed or being stoned by the community members. Therefore, the community will not accept to continue living with a person who does unacceptable acts. So, I can say that stigma is increasing.
>
> (FGD with fathers living in Morogoro)

Notwithstanding the contradictory views that since the intervention, stigma has either lessened, stayed roughly the same or even worsened, participating in the intervention was reported to have empowered some adolescents to become confident educators, counsellors and problem-solvers. They have gained knowledge and skills about mental health, allowing them to raise awareness and support their peers and others in the community.

> She has become a valuable advisor to others after attending mental health sessions. Should she encounter someone facing mental illness, she can offer support by encouraging them to seek professional help at a hospital or consult with counsellors, enabling them to recover and resume their daily lives.
>
> (IGT with 60-year-old aunt of 14-year-old girl who participated in project activities; lives in Morogoro)

> Through my participation in this programme, I have gained valuable skills, particularly in problem-solving. For instance, I have learnt effective approaches to address sensitive situations. If I encounter a friend who has been threatened and is hesitant to report it, I can engage them by asking relevant questions such as 'What's wrong?' and 'Why are you feeling lonely?' These questions can encourage them to open up about their experiences. I can then provide guidance, reassuring them not to worry and advising them to confide in their parents or seek appropriate help.
>
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

Furthermore, most adolescents have observed positive changes in their teachers' attitudes, particularly those who actively facilitated the intervention activities. These teachers have shown increased supportiveness, forged closer relationships with the adolescent participants, and offered valuable advice. The interactions and engagement within the intervention framework have not only positively influenced the adolescents but have also cultivated a more supportive and nurturing environment within the school.

> …before this programme started, I did not have a close relationship with Sir [name of mental health teacher]. However, since joining the mental health club, we have developed a strong bond. Now, whenever I encounter any challenges, I feel comfortable reaching out to him for guidance and support, and he readily assists me.
>
> (IDI with 17-year-old boy in secondary school, Morogoro)

4.3 Knowledge and attitudes toward mental health services and mental health-seeking behaviour

Understanding the knowledge and attitudes surrounding mental health services and mental health-seeking behaviour is crucial in promoting a society that values and supports the well-being of individuals experiencing mental health challenges. For this reason, we explored participants' knowledge of and attitudes towards mental health services and their mental health-seeking behaviour.

4.3.1 Knowledge of mental health services

A key theme we examined in both sites was awareness and knowledge of formal mental health services and support. At endline, both adolescent and adult respondents displayed a good understanding of the various formal services and programmes accessible for managing psychosocial stress. Some adolescents specifically referred to specialised mental health facilities or in-hospital support, such as Starehe Children's Hope, Meko, Bugando, Mirembe, and the Mental Health Unit at Magu district hospital or regional hospitals.

> Yes, there is a place like a hospital called Meko and they provide mental health services… When I pass there, I can see posters written, 'Elderly and youths with mental health illness'.
> (IDI with 13-year-old boy in primary school class 7 who led and participated in project activities; lives in Mwanza)

Some respondents in both sites (adolescents and adults) also mentioned the availability of in-school assistance from teachers or counsellors, support from retired professionals, as well as initiatives undertaken by religious organisations and Fema clubs.[24]

> There is a woman who is a counsellor, but we like to call her 'mother [name of the counsellor]'. She is a retired nurse from this hospital… She counsels her neighbours at her house.
> (IDI with 18-year-old young woman in secondary school form 4 who took part in non-digital project activities only; lives in Mwanza)

A few individuals also mentioned digital mental health services. In Mwanza, a Ward Education Officer highlighted the mood programme or mood tracker, an offline computer-based application that was introduced to adolescents and adult stakeholders during the co-creation workshops. This programme, accessible through phones, computers or tablets, was specifically chosen as the digital intervention at Nyamagana primary school. Participating adolescents entered their sleeping and mood data to track their mental health and sleep patterns, allowing them to gain a better understanding of themselves and what might influence their moods. A handful of adolescents reported encountering mental health content on social media platforms such as 'Facebook and YouTube', and through TV via the 'news bulletin'.

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24 Femina Hip, a civil society organisation, has established Fema clubs as a platform to promote youth leadership, sexual and reproductive health, HIV and AIDS prevention, economic empowerment, financial literacy, entrepreneurship, life skills, and citizen rights and engagement. Present in secondary schools across all regions of Tanzania, these clubs are supervised by designated teachers (mentors). Club activities and challenges are featured in Femina Hip magazines, and awards and recognition are provided to encourage active participation.

> I also learnt about mental health when I watched news bulletins about children who are being abused and the community calls for sessions and education.
> (IDI with 13-year-old girl in primary school class 7 who led and participated in project activities; lives in Morogoro)

> Other students in school don't perceive accessing mental health services as a sign of weakness because they also like to learn, like us.
> (IDI with 13-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

Some adults and a majority of adolescents had acquired knowledge about available mental health services through various sources, including materials distributed as part of the intervention, and visual aids such as flyers and posters. Adolescent boys and girls exhibited fairly equal levels of awareness of these services.

> We changed the opinion of people at home by educating them that mental ill health is not addressed by traditional healers. So, whoever has a person with mental ill health can take him/her to the hospital.
> (IDI with 17-year-old girl in secondary school form 4 who participated in project activities; lives in Morogoro)

4.3.2 Attitudes toward mental health services and mental health-seeking behaviour

Among participants in our qualitative data collection, **about half of adolescent respondents perceived mental health services positively**. They reported that most students value these services and do not view accessing them as a sign of weakness. Following participation in the intervention, which enhanced their understanding of mental health, this perception appears to have been strengthened.

We sought to test attitudes toward seeking mental health support more systematically in our survey, through the Attitudes Toward Seeking Professional Psychological Help scale. Analysis of data for the whole student population points to gains for the treatment group (an 8% increase) between baseline and endline and negligible change for the control group (Table 10).

Table 10 Differences in Attitudes Toward Seeking Professional Psychological Help scale between baseline and endline, treatment and control groups

	Baseline	Endline	Change (%)	p-value
Treatment	2.97	3.21	8.35	0.005
Control	2.92	2.93	0.00	n/s

Turning to changes among population groups, the comparison of baseline–endline changes suggests statistically significant gains for intervention participants in most groups, notably those who were male (increase of 14%), those in Morogoro region (13%) and those in the age 10–13 group (11%) (Figure 4). Given that the scale validation pointed to some issues with reliability affecting the primary school population at baseline (see Chapter 2), the gains among younger children may reflect a better understanding of the scale items at endline.

Our regression findings underscore the positive effect of the intervention, showing that after controlling for socio-demographic characteristics:

- the time dummy's coefficient is not statistically significant (p=0.427), indicating no strong evidence of change in attitudes from baseline to endline for the control group;

- being in the treatment group by itself is not significantly associated with more progressive attitudes compared to the control group (p=0.599);
- the interaction term (0.2719, p=0.021) is statistically significant, implying that the change in attitudes from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment group, is greater than that of the control group.

A subset of adults, especially parents of adolescent participants, also conveyed that the broader community has a predominantly positive perception of mental health services. They perceive these services as no different from any other healthcare services, and viewed the intervention as an opportunity to educate not only students but also the larger community about the nature, symptoms, triggers and treatments of mental illnesses.

Figure 4 Attitudes Toward Seeking Professional Psychological Help: changes among population groups between baseline and endline, treatment and control groups
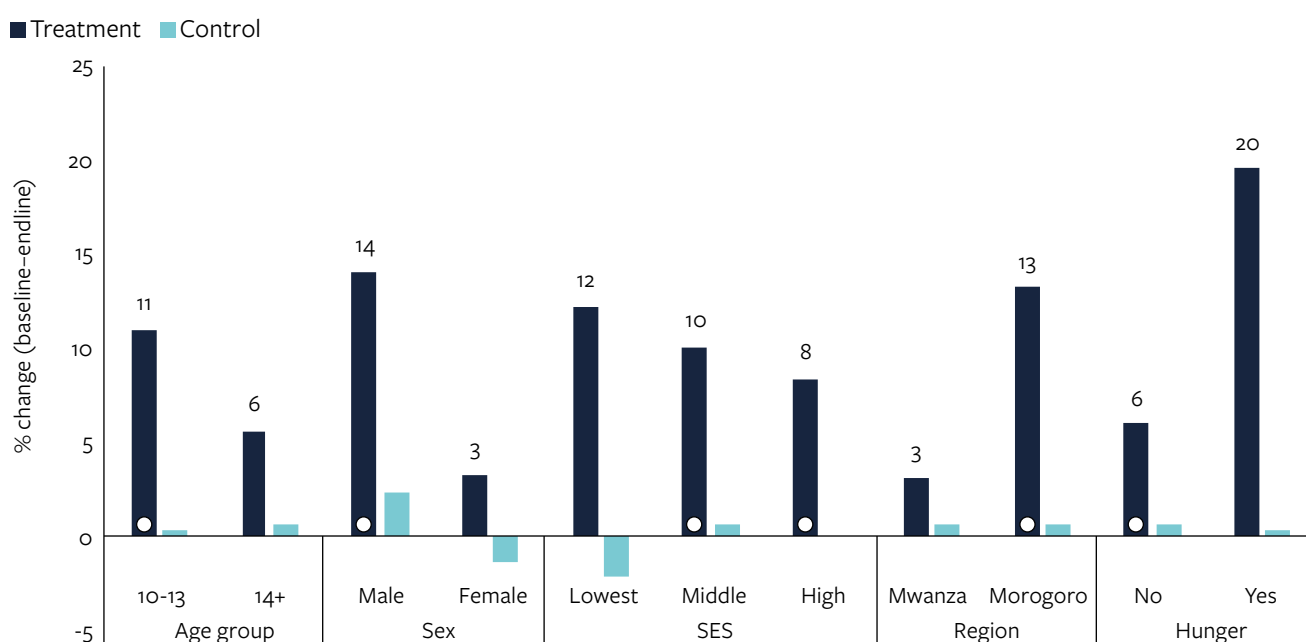
Note: Circles denote statistically significant changes (p<0.05).

> Mental health is just a normal thing, if you have mental health problems you are supposed to go to the hospital, you are not supposed to stay at home and they will appreciate the service… It is just a service like any other service, there are such departments in hospitals.
> (IGT with 59-year-old mother of 17-year-old boy who participated in project activities; lives in Morogoro)

However, a small number of adolescents, particularly those who have experienced negative labelling from peers outside the programme, indicated that **some students still hold negative perceptions of mental health services**. These perceptions are commonly associated with fears of judgement, humiliation and stigmatisation. These views imply a need for further efforts to raise awareness and reduce stigma around mental health within schools and the wider community.

> They think that they will be humiliated or isolated when they have mental health problems. Also, [they] feel that people will laugh at them instead of advising them, so they feel it is better to keep to themselves than tell other people.
> (IDI with 17-year-old boy in secondary school form 4 who co-created, led and participated in project activities; lives in Morogoro)

Some adult participants (including those who chose to practice psychiatry) also reported experiencing negative perceptions of mental health services in their community, due to a lack of awareness and understanding of mental health issues. They indicated that some people in the community still view mental illness as a curse

or a result of witchcraft rather than a treatable condition, while others feared judgement or stigma around mental ill health. These negative perceptions have reportedly affected the extent to which community members access formal mental health services. For instance, as the second quote here shows, some siblings of adolescent participants were unsure about the community's overall perception of mental health services.

> There is stigma. I am personally the victim of stigma. I was stigmatised the moment I said I am going to study mental health. They told me 'You have quit dentistry, just to go and study the diseases for crazy people?' Some have been jokingly calling me 'Aaah! Daktari wa vichaa upo?' [A doctor for crazy people, are you there?]… Some of the people totally believe that the mental health patients cannot get healed, mental health problems are because of being bewitched or mental health problems are a curse. This belief is still there…
> (KII, clinical psychiatrist, Mwanza)

> Maybe they are thinking that seeking professional help is a weakness. You know, you cannot enter in someone's mind to know what they are thinking about.
> (IGT with 20-year-old sister of 19-year-old young man who co-created and participated in project activities; lives in Mwanza)

While none of the adolescents interviewed endorsed traditional medicine or healers as a recourse for mental health struggles, some adults and community leaders tended to seek help from traditional healers when mentally distressed, believing that such practices would lead to a cure. In such cases, the father or mother of the

affected individual may oppose the idea of seeking help from a hospital or psychological services. This situation not only underscores the need for increased awareness and education about mental health issues within communities but also the need to explore culturally sensitive approaches that bridge the gap between traditional healing practices and modern mental health services.

> In certain instances, there are cases where a family member is facing a mental health issue, and their family holds the belief that seeking treatment from traditional healers will result in a cure, rather than opting for psychological services. Moreover, it can occur that either the father or mother of the affected individual expresses reluctance towards taking them to a hospital for treatment.
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

However, as a result of the intervention, it became evident that some participants experienced a notable shift in their perspectives on mental health services. They reported acquiring a more positive outlook, perceiving mental health in a different light, and witnessing a transformation in the attitudes prevalent within their communities.

4.4 Perceptions of change in mental health issues over time

When questioned about changes in mental health issues and psychosocial challenges over time, responses reflected diverse perspectives. Some individuals reported an increase in these challenges, noting a growing prevalence and impact on the community. Conversely, others observed a decrease, suggesting potential improvements or successful interventions addressing mental health issues. Others still perceived little or no change.

A common theme that emerged at baseline and endline in adolescent and adult focus group discussions was the perception that mental health challenges were increasing. More than half of the adult respondents who held this perception attributed these changes to a variety of factors, including increased poverty, a lack of mental health interventions, drug/substance use, inappropriate content on TV/social media, and poor parenting. In addition to mental health issues, other respondents reported an increase in absenteeism in schools. Adult respondents did, however, notice a rise in mental health awareness and in the number of people seeking related treatment as a result of the intervention.

> R1: I believe that mental health challenges have been increasing over time. In our school, we have witnessed a rise in marijuana use among adolescents... Moreover, there has been a concerning increase in the number of adolescents engaging in negative behaviours within our school. Additionally, in the vicinity of our school, we have observed a growing number of adolescents joining gangs.
> (FGD with adolescent boys aged 16–17 living in Morogoro)

> R2: Another thing is the hardship of life. Things have become very expensive and this is contributing, to a large extent, to the increase in mental health problems. People can't fulfil their needs and so they become stressed, which leads to high blood pressure.
> (FGD with mothers living in Mwanza)

One respondent from the farming community of Morogoro observed seasonal changes in mental health challenges, being more notable during the unemployment (planting) season due to low financial security and easing somewhat during the harvest season due to improved economic conditions.[25]

At endline, some adult respondents reported a **decrease in mental health challenges** in Morogoro and Mwanza. They attributed this positive shift to the increased mental health awareness among adolescents, which was a direct result of the intervention implemented in schools. The activities played an important role in equipping adolescents with the knowledge and skills necessary to address mental health issues effectively.

> R4: Based on my observations, it appears that mental health problems are on the decline due to the education children are receiving at the mental health club. The knowledge acquired by children equips them with effective coping strategies to navigate the challenges they encounter.
> (FGD with mothers living in Morogoro)

However, a few key informants reported **little or no change in mental health difficulties** over time. According to a psychiatric nurse, any obvious changes are quite minimal because just a few people in the community have access to mental health services, due to inadequate provision.

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25 **Though beyond the scope of this research,** this raises important questions that merit additional research – both regarding the impact of financial security and the actual and potential impacts of climate change (and attendant insecurity) on mental health outcomes.

5 Effects of the intervention on mental health and its drivers

We now turn to the effects of the intervention on core mental health outcomes, again comparing baseline and endline data. To frame the discussion, we first discuss the general context of the Covid-19 pandemic, against which the intervention took place, as this was an important influence on adolescent mental health (see also León-Himmelstine et al., 2021). Some participants reported that the intervention had helped them to cope with the adverse effects of the pandemic (Box 9). The chapter then goes on to report the effects of the intervention on key markers of mental health and psychosocial well-being, drawing on quantitative evidence and comparing participants with non-participants. Then, from a qualitative perspective, we explore other indicators of positive and negative mental health and psychosocial well-being, and any changes reported due to the intervention.

Box 9 Covid-19 and its impacts on mental health

Covid-19 had a variety of effects on adolescents' mental health. Some respondents recalled 'staying at home all the time' and feeling 'lonely'. One adolescent spoke of 'fear' when being around friends, while another shared that 'even stepping outside was dangerous'. School closures also had a negative effect, not only on adolescents' learning but also on feelings of isolation, stress and worry. When schools reopened, some adolescents experienced feelings of disappointment when they failed their final exams, as teachers did not have time to cover the entire content of the modules.

Although several adolescent respondents reported no changes in their relationship with their family as 'they were with them in the same place', a few observed that they were unable to visit relatives (or, at times, parents) who were living elsewhere, due to lockdown measures. As the pandemic led to parents' unemployment, or unstable work, adolescents' mental health was affected by rising poverty. For instance, one 13-year-old girl said that 'we were starving because mother and father could not go to work'. Another adolescent boy shared that social distancing measures affected his father's business, leading him to feel worried and stressed. Key informants indicated that some parents were unable to pay school expenses or tuition fees due to the negative economic effects of the pandemic, which meant their children dropped out of school.

> ### Box 9 Covid-19 and its impacts on mental health continued
>
> When social distancing measures had been lifted, adolescents concurred that many aspects of their lives went 'back to normal', such as going to school or visiting or playing with friends. However, at school, teachers and adolescents cited some sort of 'stigmatisation' of students who displayed cough or cold symptoms (as these were associated with Covid-19). Adult respondents during intergenerational trio interviews observed that the economy remained 'tough' due to a lack of jobs and bad weather conditions affecting crops – issues they had also faced before Covid-19. However, other adults reported that their business was 'going back to normal' and that the economy was recovering.
>
> Several respondents observed that the intervention had a positive effect on how adolescents dealt with the mental health effects of Covid-19. Some adolescents noted that the intervention helped them to deal with anxiety when they worried about Covid-19 by 'inhaling and exhaling [i.e. breathing exercises] or by chatting with friends', as observed by one adolescent boy from Mwanza. Others described how they were able to advise others on coping strategies to deal with Covid-19-related negative feelings. For instance, one adolescent commented on how they advised others not to isolate themselves and to spend time with family and friends. Another adolescent observed that the intervention helped to reduce stigma around those showing potential Covid-19 symptoms, to some extent. However, a handful of adolescent respondents, along with their relatives, did not perceive that the intervention had made any difference to how adolescent participants dealt with the impacts of Covid-19, although they did not elaborate on why.

5.1 Effects of the intervention on mental health and psychosocial well-being

Our analysis of the intervention's effects on mental health and psychosocial well-being focuses on two core indicators: the Strengths and Difficulties Questionnaire (SDQ) and the WHO-5 Well-Being Index. The SDQ is made up of 25 items assessing **mental health difficulties** – emotional symptoms, conduct problems, hyperactivity, peer problems – and **prosocial behaviours**, and is completed on a 3-point scale of 'not true', 'somewhat true' and 'certainly true'. Conduct problems and hyperactivity are considered 'externalising' difficulties, while emotional symptoms and interpersonal problems with peers are indicators of 'internalising' difficulties (Goodman, 1997, 1999; Goodman, Lamping et al., 2010). During our baseline study, and in the pooled survey data, we identified two subscales (coded from 0 to 1) based on an exploratory factor analysis: (1) mental health difficulties, consisting of internalising and externalising

symptoms across the four dimensions; and (2) prosocial behaviours.[26] Whereas adolescents in the treatment group registered a 9.4% rise in prosocial behaviours (p=0.001) and an equal (but not statistically significant) decline in mental health difficulties, the control group experienced smaller and non-statistically significant changes for both subscales (Table 11).

Table 11 Scores for the 3 subscales of the SDQ scale between baseline and endline, treatment and control groups

a. Treatment group

	Baseline	Endline	% change	p-value
Mental health difficulties	0.35	0.32	-9.37	0.232
Prosocial behaviour	0.77	0.85	9.41	0.001

b. Control group

	Baseline	Endline	% change	p-value
Mental health difficulties	0.31	0.34	8.82	0.240
Prosocial behaviour	0.77	0.77	0.00	0.596

In terms of the incidence of **mental health difficulties**, for the treatment group, our analysis points to decreases of 5% or higher in 8 of the 11 socio-population groups, although the recorded rise is only statistically significant for the age 10–13 group who experienced a 19% decrease for this subscale (Figure 5). For the control group, in contrast, there are no decreases in the incidence of mental health difficulties and rises of 5% or higher among 7 of the 11 population groups, though the recorded drop is only statistically significant for the population in the high SES tercile who experienced a 29% rise in this subscale. The regression results for this subscale suggest that after controlling for socio-demographic differences:

- there is no strong evidence of a change in 'mental health difficulties from baseline to endline for the control group (p=0.101);
- being in the treatment group is not significantly associated with any difference in 'mental health difficulties compared to the control group at baseline (p=0.772);
- the change in 'mental health difficulties from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment group, is not significant (-0.043, p=0.239).

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26   For details of the exploratory factor analysis that generated these scales, see Annex 5. Previous research has tended to report a five-factor or three-factor structure (see Costa-Ball et al., 2023 for an analysis of 18 articles, 11 of which report five-factor solutions and 9 of which reported three-factor solutions). However, it is notable that these 18 articles focus on 11 high-income countries and 2 upper middle-income countries, pointing to a dearth of evidence from lower-income settings. Moreover, the evidence regarding factor structure is far from conclusive and continues to be debated (Percy et al. 2008; Essau et al., 2012; Ortuño-Sierra et al., 2015; McAloney-Kocaman and McPherson, 2017; Kulawiak et al., 2020; Costa-Ball et al., 2023). Per Costa-Ball et al. (2023: 141): 'Considering the large number of articles that have analysed the SDQ's psychometric properties in its 25 years of existence, the limited number of studies that confirm the original five- and three-factor structures is striking. Factor solutions that achieve good fit indices have been reported, but they deviate from the original theoretical model.' Goodman, Patel et al. 2010 report a two factor (internalising-externalising problems) solution. Note that our second factor contains the five prosocial items and the five reverse-worded items from other subscales. Other research affirms issues with these reverse-worded items (Muris et al., 2004, van Roy et al., 2008, Essau et al., 2012, Ortuño-Sierra 2015), which Karlsson et al., (2022) argue give rise to a so-called 'methods' effect.

Figure 5 Changes in mental health difficulties (SDQ subscale) between baseline and endline, treatment and control groups
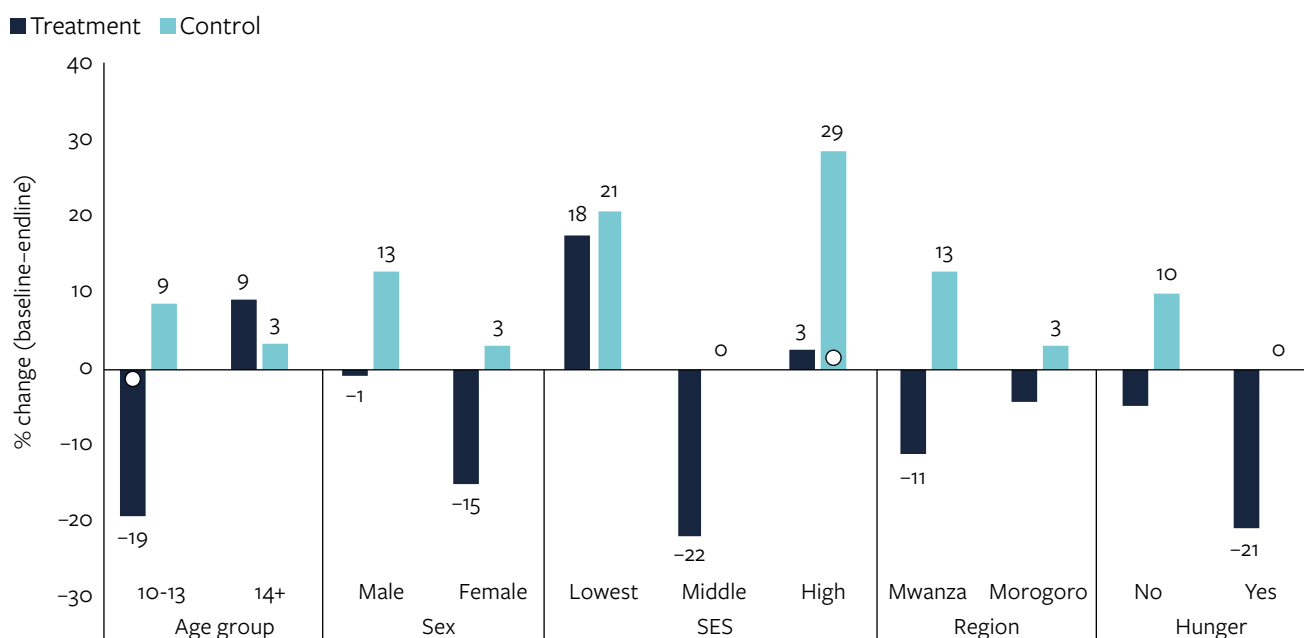
Note: Circles denote statistically significant changes (p<0.05).

In terms of **prosocial behaviours**, for the treatment group, our analysis points to an increase in all socio-demographic categories excepting the population in the high SES tercile; the increases were statistically significant for boys (13%), the population in Morogoro (12%), the middle SES tercile (11%), the age 10–13 population (9%) and the population who did not experience hunger in the previous year (8%) (Figure 6). In contrast, changes in the control group were small and only statistically significant in the case of the population in the lowest SES tercile, who experienced a decline of 7%. For this subscale, the regression results suggest (again after controlling for socio-demographic characteristics) that:

- the coefficient for the time dummy (-0.0086) is not statistically significant (p=0.564), suggesting no strong evidence of a change in pro-social behaviour from baseline to endline for the control group;
- being in the treatment group is not significantly associated with any differences in pro social behaviour scores compared to the control group at baseline (p=0.861);
- the change in pro social behaviour from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment group, is significant (0.0661, p=0.043), indicating that the intervention may have had a positive impact on pro social behaviours.

Figure 6 Changes in prosocial behaviours (SDQ subscale) between baseline and endline, treatment and control groups
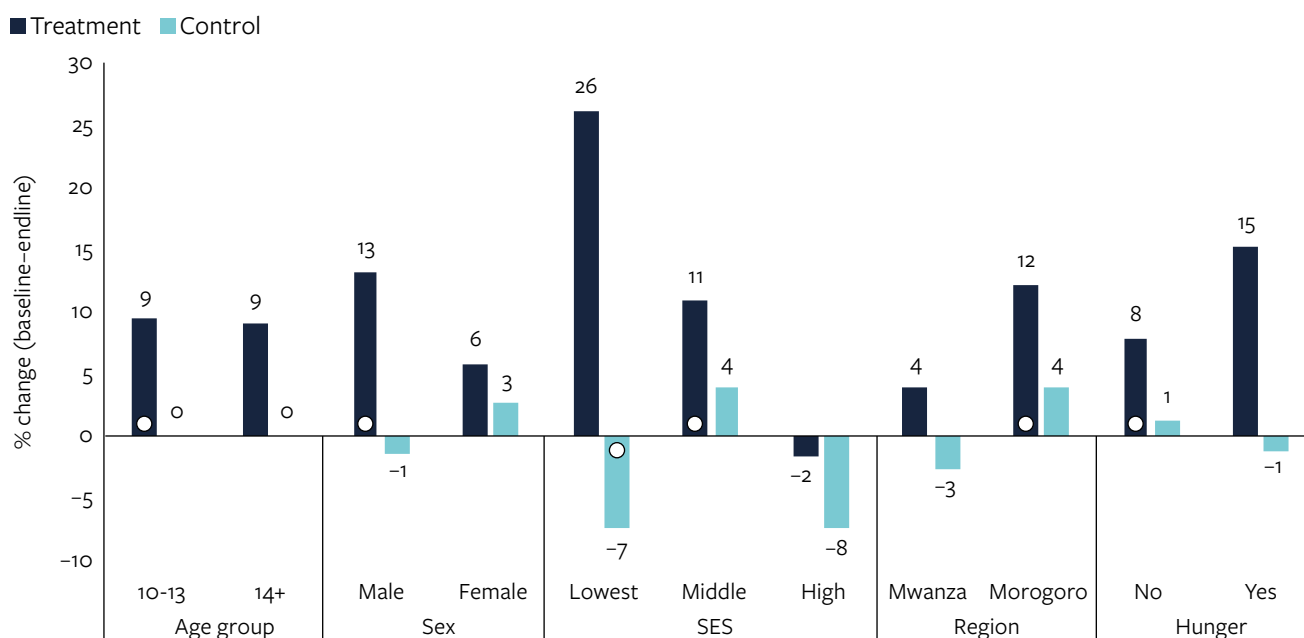
Note: Circles denote statistically significant changes (p<0.05).

Turning to the WHO-5 Well-Being Index, our results point to statistically significant increases over time, of 9.4% for the treatment group and 5.6% for the control group (Table 12). The changes are positive and generally statistically significant for the population groups who participated in the intervention, and mostly smaller (and in two cases, negative) for those in the control group (Figure 7). Among the population groups in the control arm, the only statistically significant change is among younger children (increase of 12%), those who experienced hunger in the previous year (increase of 11%) and those in the middle SES tercile (increase of 10%). Among the treatment arm, by contrast, changes were highest (and statistically significant) for boys (increase of 15%), those in the high SES tercile (increase of 12%) and the age 10–13 population (increase of 10%). Changes also appeared sizeable for students from the lowest SES tercile and those who reported having gone hungry in the previous year (increases of 21% for each group) but these were not statistically significant.

Table 12 Differences in WHO-5 Well-Being Index between baseline and endline, treatment and control groups

	Baseline	Endline	Change (%)	p-value
Treatment	4.37	4.78	9.43	0.004
Control	4.30	4.54	5.58	0.004

According to our regression model:

- time dummy coefficient (0.1708) is positive but not statistically significant (p=0.071), suggesting a potential but not definitive improvement in well-being from baseline to endline for the control group;
- being in the treatment group is not significantly associated with a difference in well-being scores compared to the control group at baseline (p=0.401);

- the additional change in well-being scores from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment group, is not significantly different from the change observed in the control group (p=0.111).

The interaction term's lack of significance suggests that the intervention's effect on improving the WHO-5 Well-Being Index from baseline to endline is not markedly different from that of the control group.

Figure 7 WHO-5 Well-Being Index: changes among population groups between baseline and endline, treatment and control groups

Note: Circles denote statistically significant changes (p<0.05).

Taken together, the regression modelling shows that the intervention appears to have had an impact on improving the SDQ pro social behaviour subscale among treatment adolescents, once controlling for differences in socio-demographic characteristics. However, it does not appear to have reduced either the SDQ mental health difficulty subscale or the WHO-5 Well-Being Index.

The contrast in our findings between sharp increases in the indicators of mental health knowledge and awareness and only modest gains in core mental health outcomes merits further attention. A nascent literature suggests a positive association between levels of mental health literacy and psychological well-being among adolescents (Lam, 2014; Bjørnsen et al., 2019; Singh et al., 2019; Sampaio et al., 2022). The argument is that higher levels of awareness are likely to translate into an earlier recognition of mental health issues and thus greater likelihood of help-seeking and better attitudes towards mental health (see Joshi, 2022). However, mental health literacy is a broad concept that is measured in diverse ways; so a better understanding of its components and their impacts is needed. Moreover, the existing studies

focus on levels of mental health literacy rather than changes in outcomes; further exploration of the impact of changes in mental health literacy is thus warranted. It may be that linkages between mental health literacy and outcomes take longer to materialize than the relatively short time period afforded by a time-limited intervention, or indeed that higher levels of mental health literacy may not translate into better mental health outcomes in contexts where opportunities for help-seeking are limited. In addition, it could be that mental health awareness efforts lead to 'more accurate reporting of previously under-recognised symptoms', and therefore a higher prevalence of mental health problems (Foulkes and Andrews, 2023).

Alternatively, other persisting drivers of poor mental health outcomes may offset the effects of improved mental health literacy. For example, our baseline research showed that the two factors that most influenced the risk of depression (according to the WHO-5 Well-Being Index) were being subject to physical violence from parents, and poverty (measured as having experienced hunger in the previous year), neither of which is likely to have improved significantly during the period of the intervention. This is an area that we flag for future research (see Chapter 9).

5.2 Other indications of positive and negative mental health and psychosocial well-being

From a qualitative perspective, this section focuses on other indications of positive and negative mental health and psychosocial well-being, and identifies any changes reported as being due to the intervention. It compares drivers of mental (ill) health and psychosocial well-being or distress at baseline and endline, focusing on the experiences of adolescents who participated in the intervention at design and/or implementation. When adolescents were questioned as to how many friends experienced positive changes, of those who were able to provide a figure, responses varied from 'one' to 'more than ten'. The most frequently mentioned figure was 'three'. However, some participants suggested there had been no changes in other indications of positive or negative mental health as a result of the intervention.

5.2.1 What makes respondents sad, unhappy or anxious, what are the triggers or drivers of psychosocial distress and anxiety, and did the intervention result in any changes?

At baseline and endline, most adolescents reported experiencing some form of mental distress. Most participants shared that they had felt sad, but feelings of anxiety and stress were also common. Some adolescents, boys and girls alike, expressed that they felt sadness 'a few times', while adolescent girls were slightly more likely to report feeling sadness 'many times'.

The qualitative component identified very similar factors driving adolescents' feelings of unhappiness, sadness or anxiety at both baseline and endline. Unstable family dynamics emerged as a major stressor in adolescents' lives; this could mean living with one parent, experiencing or witnessing physical violence at home, or lacking parental care.

> When I was beaten by my parents, they punished me for my benefit. They told me not to do something and I did it. When she [mother] called me and beat me or scolded me, I would go inside, sitting alone and cry.
> (IDI with 14-year-old girl in primary school, Morogoro)

Adolescents identified other important factors, at baseline and endline: not having time to rest; being unable to afford leisure activities (e.g. transport costs to attend a sports event); or not having a strong network of friends. Poverty was a major factor leading to mental ill health. Several adolescents expressed feeling sad or stressed when their family could not meet their basic needs, including food.

> I did feel sad because I had to stay hungry while watching my friends eat.
> (IDI with 17-year-old boy in secondary school, Morogoro)

Key informants confirmed that poverty was a major driver of mental ill health among adolescents. Furthermore, several participants noted a linkage between poverty, bullying and stigma.

> ...there can be a student with worn-out shoes, instead of encouraging her/him, some people may start laughing at him/her, that person may start feeling as if he/she doesn't have any value in that class, he/she may decide not to come to school the next day.
> (IDI with 17-year-old boy in secondary school, Morogoro)

Another very important driver of mental ill health that continued to emerge at endline was being unable to attend school and to learn in a positive classroom environment. Adolescents observed that they felt distressed and unhappy when they could not attend school, could not afford school materials or struggled to cope with academic pressures such as exams and subjects or exercises that were difficult to understand. Some

participants indicated that parents or caregivers would threaten or use corporal punishment when adolescents failed exams. Others experienced or feared corporal punishment from teachers for reasons related to poor academic performance or behaviour. Indeed, at baseline, some two-thirds of survey respondents reported having experienced corporal punishment, and 70% had experienced another type of physical punishment (such as being forced to run) – though in our quantitative data, this did not appear linked to either the SDQ measure or WHO-5 Well-Being Index.

In these situations, the term 'anxious' was more frequently used to describe the type of mental distress experienced.

> Yes, maybe in the class the respondent might feel anxious] when a teacher asks me a question and I don't know the answer. I would be worried thinking that maybe the teacher would hit me. Sometimes you may know the answer, but you get nervous because a teacher is in a bad mood.
> (IDI with 17-year-old boy in secondary school, Morogoro)

One adolescent shared that although he felt sad when he was beaten at school, corporal punishment was perceived as normal when a student 'made a mistake'. Other school-related drivers of mental ill health that continued to emerge at endline were experiences of bullying and disagreements or conflict with classmates. However, at endline, a large proportion of adolescents reported that they did not experience any issues at school.

At baseline and endline, study respondents in the qualitative component identified that

adolescents with certain socio-demographic characteristics (e.g. older adolescents, girls, those experiencing poverty) were at higher risk of mental health disorders. For example, most adolescents shared the view that girls were more likely to suffer from mental ill health. This was due to the physical changes and emotional challenges that adolescence brings, early marriage, and early and unintended pregnancies; at times, pressure to get married creates anxiety and stress among girls given that they have fewer economic opportunities compared with boys. For boys, mental ill health can be driven by peer pressure to get involved in socially frowned-upon behaviours (such as stealing, or consuming drugs and alcohol), and the pressure to become economically independent. Also at endline, several respondents participating in different types of qualitative data collection mentioned that being homosexual could affect boys' mental health, but participants did not elaborate as to how.

Regarding age, most respondents observed that older adolescents (those aged 16–17 and above) were more at risk of mental health disorders due to their greater likelihood of experiencing peer pressure, or were more likely to use alcohol or drugs. A handful of respondents indicated that adults were more likely to 'take those problems seriously' and seek support compared to adolescents, while several other respondents disagreed and suggested that 'adolescents can easily disclose more than adults'.

Socioeconomic status was also mentioned as an important factor that can lead to mental ill health. Most participants indicated that adolescents from lower socioeconomic groups were more likely to face mental health challenges because their household could not afford their basic needs, including school material and uniforms. However, other participants observed that adolescents from

wealthier households were more likely to suffer from mental ill health because their parents may be absent, so the adolescent children would feel neglected. Regarding ethnicity, only in Morogoro did adolescents indicate that those of 'Luguru' ethnicity were more likely to experience mental health disorders due to their lack of educational opportunities (especially girls, often due to a parental preference for early marriage). This meant that adolescents from this ethnicity were less likely to attend school.

Participants across different types of qualitative data collection identified important changes regarding drivers of adolescents' mental ill health as a result of the intervention. Most of these changes related to adolescents' experiences and learning at school. Several adolescents and teachers highlighted that some of the drivers of mental ill health declined as school performance improved (e.g. through reduction of truancy or completion of school assignments), although they did not provide more details. A reduction of 'cases of violence among children' and bullying were also stressed by both adolescents and teachers.

> For instance, one of my friends – a girl who joined the club – initially she was arrogant, stigmatising others, bullying. But she has changed, instead she now encourages others.
> (IDI with 17-year-old girl in secondary school, Morogoro)

Adolescents also described changes in the way they coped with corporal punishment from adults (parents and teachers), although such changes may reflect attitudes of acceptance or resignation.

> …nowadays if I am scolded, I just let it go because I know I would be troubling myself while it happens every day. Before I liked arguing if scolded, but now, I just keep quiet.
> (IDI with 17-year-old boy in secondary school, Morogoro)

> In the past, when we were punished, the teacher would tell us, 'Go and dig over there', but nowadays I don't mind, I just face my punishment and go back to class.
> (IDI with 14-year-old boy in primary school, Morogoro)

This shows that although the intervention did not necessarily affect certain drivers of mental ill health that were beyond adolescents' control – especially those that were structural (poverty) or those based on accepted social norms (corporal punishment) – it *did* affect how adolescents responded to or coped with such drivers. However, their coping mechanisms (such as acceptance/being resigned to corporal punishment) were not necessarily positive, highlighting the importance of involving and raising awareness among parents and teachers who, at times, contributed to adolescents' mental ill health.

Several adolescents commented that the drivers of their mental distress have remained the same despite the intervention. As noted, some indicated that corporal punishment persists; others reported that they have not perceived a reduction in bullying or teasing. For example, during a focus group discussion with boys in Morogoro, participants noted that they have not seen changes because students still 'mock' or 'make fun' of someone who has done something 'wrong'.

5.2.2 Was there anything respondents liked or disliked about themselves, and were there any changes as a result of the intervention?

At baseline, a positive perception of oneself was an important protective factor for mental health. Although at baseline, most adolescents reported that there was nothing they disliked about themselves and they felt happy overall with their self-esteem, at endline most participants reported that there was something they disliked about themselves. Examples included personality traits such as negative behaviours towards others (e.g. scolding or arguing with others) or a failure to complete tasks. One adolescent described how her friends perceived her as 'arrogant' even though she did not intentionally act this way. Other adolescents observed a relationship between the perceptions they had about themselves and material aspects related to their welfare (poor-quality housing) or their inability to provide for their younger siblings.

Several participants indicated having made changes to things they disliked about themselves after the intervention. For instance, adolescents highlighted that they have learnt about solving conflict with their peers and have stopped some 'naughty' behaviours.

> Since I joined this programme, I discovered that it is not a good thing to argue with other people.
> (IDI with 17-year-old girl in secondary school, Mwanza)

> Now I don't make too much noise in the class compared to before the programme, and I have also reduced being naughty... I used to pick on my peers, especially when someone was writing, I would just grab her pen, but nowadays I have stopped.
> (IDI with 17-year-old girl in secondary school, Morogoro)

Another adolescent girl described how she has stopped being 'self-centred', although she did not elaborate. Key informants also observed important changes among adolescent participants. One teacher in Mwanza noted that adolescents now 'express themselves openly' and have 'gained confidence'.

5.2.3 What makes respondents happy, and were there any changes as a result of the intervention?

At both baseline and endline, several adolescents described what makes them happy. They cited: physical well-being (being healthy); the ability to spend time on activities of their choice (singing, sports) and/or with friends; feelings of being cared for and loved; being provided with their basic needs; and being able to attend school. Parents linked adolescents' happiness to their material needs (such as food and clothes) being met, while at endline they also mentioned that providing adolescents with the 'freedom to do what they like' made them happy. Similarly, having positive role models was linked with mental health; in our baseline survey, 85% of respondents reported having a positive role model and this was positively associated with psychosocial well-being. Both at baseline and endline, the role models most frequently mentioned by adolescents were teachers, close relatives, and staff related to the intervention (the latter only at endline).

Most participants mentioned changes in what makes them happy as a result of the intervention. Several adolescents observed that before the programme, they tended to isolate themselves when they needed to relax or to overcome feelings of distress; however, since the intervention, they felt happier because they became more sociable and enjoyed being around their peers.

> I was just feeling that if I sit with this person, it will disturb me [by making noise]. I thought it was better to just sit alone in order to be happy... Now I like spending time with my friends and even those who are not my friends as long as we educate each other about things that I don't know.
> (IDI with 14-year-old girl in primary school, Morogoro)

Similarly, some adolescents observed that their involvement in the intervention helped them to make friends with other programme participants.

> We just started talking to each other, while in the past we were not. We were meeting in the computer room, as you know there were problems with the mouses. So, sometimes I was asking him for his mouse and sometimes he was asking me for my mouse, then our friendship became stronger.
> (IDI with 19-year-old young man in secondary school, Mwanza)

Improved conflict resolution was another outcome of the programme, as observed by one adolescent boy who was feeling unhappy after quarrelling with one of his peers.

> **We saw that conflict is something which is not good. There is life after school, we may help each other in the future.**
> (IDI with 19-year-old young man in secondary school, Mwanza)

One adolescent boy discovered that as part of the intervention, reading and doing exercise made him happy.

> **When I started attending the mental health sessions, I started to like reading and discussing with my peers. That is when my interest started.**
> (IDI with 13-year-old boy in primary school, Mwanza)

Another adolescent boy described how the programme made him appreciate watching 'other people succeed'. Only a few adolescents felt that there were no changes as a result of the intervention, but did not elaborate on why.

5.2.4 What do respondents do during leisure time, free time or for fun, and were there any changes as a result of the intervention?

Adolescents mentioned very similar leisure activities at both baseline and endline. The most frequently cited leisure activity (predominantly by boys) was playing sports, particularly football. Other activities boys and girls highlighted included having time to play, spending time with friends or relatives, reading, listening to music and watching television (TV). However, several adolescents (particularly girls) reported having no leisure time

at all, while others noted that they had leisure time at home but not at school, or vice versa. Girls mentioned similar constraints to their leisure time at both baseline and endline, particularly having to do household chores and/or caring responsibilities when they returned from school.

For those adolescents who reported at endline that they did have leisure time, the amount varied. Most adolescents had free time at the weekend (typically one of the two days, not both). There were also differences by age. Older adolescents commented that they did not feel they had enough leisure time, particularly during school days, whereas younger adolescents perceived that they did 'get enough time'.

Although some adolescents felt that there was no change in their leisure activities, others observed some changes that they attributed to the intervention. Some stressed that they began to feel motivated to spend more time on activities of their choice when the intervention taught them that leisure activities were important to cope with stress. For example, as the clubs assigned great importance to sports, several adolescents shared their new interest in engaging with these.

> **Honestly, in the past I did not like sports. Until I joined the programme, I realised the importance of sports. I was not participating in any sports, even in primary school.**
> (IDI with 18-year-old young woman in secondary school, Mwanza)

Other adolescents shared that the intervention taught them the importance of spending time with friends after school.

> I started spending more time with my friends after I joined the mental health programme. Before I joined the mental health club, I was going home immediately when the bell rang, but now I don't leave immediately, I share stories with my friends.
> (IDI with 17-year-old boy in secondary school, Morogoro)

Adolescents had mixed perceptions about how supportive their parents or other community members were towards their engagement in leisure activities. Support seemed to be mediated by the type of activity. For example, around half of adolescents suggested that their parents and community members were supportive when they played with friends or played sports, as long as they finished their household chores and did not neglect their studies. In contrast, during intergenerational trio interviews, other adolescents and their adult relatives observed that parents disapproved of adolescents' use of social media, as they could copy bad behaviours from popular singers, such as inappropriate styles of dress. Similarly, several adolescents noted that within their family and community there was a perception that, excepting religious songs, 'music destructs adolescents'. This was confirmed by fathers who perceived that some songs (particularly international music) 'destruct the morals of children'. Parents also shared concerns about their children spending their leisure time in bad company, because some friends could lead them to engage in inappropriate behaviours such as drug consumption or stealing. Parents also disapproved of activities that incurred certain expenses, such as transport.

This shows that although adolescents may have changed their perceptions about the importance of spending time doing leisure activities for the benefit of their mental health,

this does not necessarily align with parents' perceptions, particularly when parents perceive that leisure activities may interfere with children's responsibilities (whether at school or for household chores) or lead to bad behaviour.

5.2.5 Indirect impacts of the intervention

In this section, we explore the indirect effects of the intervention on participants – that is, on those who did not directly participate such as parents, teachers and school peers but may have benefited from the programme indirectly. Our accounts draw on the reports of students and other key informants, including parents, teachers and other stakeholders.

Adolescents discussed the effects of the intervention on teachers, observing mixed outcomes. Only in Morogoro did adolescents observe negative behaviour from some teachers who were not involved in the intervention, who used stigmatising language towards facilitators and students who were taking part. These teachers 'made fun' of the facilitators and called adolescent participants 'the crazy committee' (according to one secondary school girl in Morogoro). However, most adolescents reported positive effects on their teachers, particularly those who facilitated intervention activities; they reported that they became more supportive, built closer relationships with adolescent participants, and offered advice.

Other adolescents noted changes in teachers who did not directly participate in the intervention, although it was unclear what had motivated them to change. Adolescents indicated a reduction of 'severity' in disciplinary behaviour, improvements in teaching quality, and the encouragement of a more inclusive environment.

> As for the teachers, there have been noticeable changes. For instance, [name of teacher] consistently emphasises the importance of treating our peers with care, avoiding discrimination, and demonstrating respect for older individuals. There's also a focus on not isolating those with disabilities but rather showing them genuine affection.
> (IDI with 14-year-old boy in primary school, Morogoro)

A reduction in teachers' use of stigmatising language was another important change. Two secondary school students (again from Morogoro) observed that one teacher initially referred to participating students as 'mental people' or 'crazy people', but he did not use those names once adolescents had explained to him the purpose of the intervention and showed him the IT skills that they were learning through it. Key informants echoed some of the positive changes that adolescents observed regarding their teachers. For example, one local government key informant from Morogoro stressed that as a result of the intervention, teachers were more likely to provide 'counselling to identify the problem' rather than 'beating students'.

Several adolescents observed a variety of positive effects of the intervention on their school peers. Some observed greater collaboration in the class compared with before the intervention. This was driven by adolescent participants who encouraged their peers to collaborate with each other and to learn about mental health.

> In the class, there were people who were isolating themselves … but after we gave them advice that they should not isolate themselves, but rather collaborate with

> their peers, they changed. Now there is collaboration in the class. Even when a teacher is not in the class, we solve different questions together, while in the past we were not doing that.
> (IDI with 17-year-old girl in secondary school, Mwanza)

> In the past, someone can just isolate you, but currently we don't isolate each other. We cooperate with each other in everything … because we have been advising them [other students] about mental health and that's why they have changed.
> (IDI with 14-year-old boy in primary school, Morogoro)

Other adolescents observed that students now share their problems with their teachers so that they can advise them. Some participants mentioned a reduction in the use of stigmatising language from peers. The use of school assemblies at Morogoro to share knowledge about the intervention contributed to this outcome. For example, peers would initially call adolescent participants 'people with mental health problems' but once adolescents had explained the intervention and associated activities during assemblies, the other students stopped using those words and instead expressed interest in participating themselves. Other participants observed that their peers now 'present their ideas' without 'being criticised', although they did not elaborate.

At endline, several participants described their peers as being more aware about mental health 'compared to the past'. This is because adolescent participants shared what they learnt with their peers (see also Chapter 3) and used their mental health knowledge to 'educate' them.

> ...now there are people who understand that we have more knowledge [on mental health] than them ... as they know what we are doing at the [mental health] club. At this club we were able to invite people who we thought were not feeling good, so that we could educate and help them to solve their problems, so things could go well.
> (IDI with 17-year-old girl in secondary school, Morogoro)

Key informants confirmed that adolescent participants shared the mental health knowledge they gained through the intervention with their peers. One key informant in government noticed that adolescent participants inspired their peers to join the intervention because they also wanted to gain mental health knowledge and digital skills.

> Many of them [non-participating adolescents] wish to join the programme because they have noticed good things about their fellow students – for instance, using computers. Those who are part of the programme tell their fellow students, 'Nowadays I know how to switch on and use a computer', so this motivates other students to join the programme.
> (KII, Ward Education Officer, Morogoro)

Several adult respondents highlighted positive changes among parents and the wider community. Some key informants (health staff) mentioned that parents were more aware about mental health, with some even approaching local clinics that provide mental health support if they were concerned about their children's well-being.

> I think there is some light among parents. Parents do bring their children and ask me to help them because they are smoking marijuana. That means there is some awareness in the community. I haven't seen something like this in the past. Some of the parents are confident enough to tell me, 'This child has started using drugs'. They are bringing them to the hospital. I think there are some changes.
> (KII, clinical psychologist, Mwanza)

Some parents also stated that they were now more aware of mental health, including their own.

> R3: I will use myself as an example... I have been thinking about something for a very long time and isolating myself. Personally, I have learnt that if you think about something for a long time or isolate yourself, you may end up having a mental health challenge. So, the programme has brought changes somehow.
> (FGD with fathers living in Morogoro)

Only adolescents reported speaking to others about the intervention outside the club. Most adolescents indicated that they mostly spoke to their parents and their friends, while others spoke to other relatives, including grandparents, siblings and uncles. Neighbours and teachers were also mentioned.

Several participants described that they shared their knowledge about mental health with their friends.

> Because ever since I joined the programme I teach my friends about mental health. For instance, I taught my friend about the signs of mental health problems.
>
> (IDI with 17-year-old girl in secondary school, Morogoro)

Another participant described being able to use his newly acquired mental health knowledge to 'teach' a friend with post-traumatic stress disorder (PTSD), meaning that he was giving her advice about ways to cope with mental ill health. Adolescents observed that friends showed interest in joining the intervention not only because participants shared their mental health knowledge, but also because participants spoke about the content and the benefits they have experienced as part of the intervention.

> My classmate asked me, 'What are you doing in that programme?' I told her that we learn about mental health issues. I explained to her about what we are learning and how we benefit from the programme. She also wanted to join, but they told her to wait until the next phase.
>
> (IDI with 17-year-old girl in secondary school, Mwanza)

Adolescents also spoke about the intervention with their parents. Participants mentioned that they spoke with female relatives (mother, aunts, grandmothers) more often than with male relatives. When mentioning the intervention to parents and caregivers, adolescents explained its objectives, the activities undertaken, and what they had learnt (such as the meaning of mental health, the signs of positive and negative mental health, and coping mechanisms). Adolescents also highlighted their parents' reactions. Some parents approved of the content and supported their children's participation, as they understood the benefits. Other parents showed additional interest and asked adolescents to share the content and learning in more detail, including the Swahili textbooks about mental health that were provided.

> I spoke to my mom from the very first day that you introduced the programme, and she insisted that I made sure I understood what was taught so that I could teach them back home. I used to tell my mother to reduce stress and anger as they are unhealthy. Every evening, after showing them what I have learnt at school, I then gave them the materials about mental health that were provided to us, they read them, and then I briefed them about mental health.
>
> (IDI with 12-year-old girl in primary school, Mwanza)

Similarly, another adolescent girl from Morogoro described how she spoke about the programme with her grandmother and advised her about mental ill health and the negative consequences of some negative coping mechanisms (self-isolation). She also mentioned that if she had the opportunity to, she would also talk to her sister and mother, but did not elaborate.

6 Effects of the intervention on access to and use of formal mental health services

This chapter concentrates on the influence of the intervention on access to and use of formal mental health services, as well as pre-existing school-based clubs and programmes. Drawing only on the qualitative component of the study, it delves into the lived experiences of adolescent and adult respondents in Morogoro and Mwanza at baseline and endline, highlighting changes that may be attributed to the mental health club, functioning as both an intervention and a formal mental health service.

6.1 Mental health services at site level, and key stakeholders relevant to adolescents' mental health and psychosocial well-being

Mental health services at the study sites were provided through school counselling services and local clinics (e.g. clinical psychiatrists, nurses). Local government departments provide referral services and coordinate among themselves to deal with cases of mental ill health, including among adolescents. NGOs and community-based organisations do not deal with mental health directly but provide assistance where appropriate.[27]

Table 13 shows the key actors and policy-makers at the study sites, their purpose, and the work they carry out in relation to adolescent mental health.[28]

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27   See León-Himmelstine et al., 2021, Annex 8 for more details of mental health service provision in the study sites.
28   At baseline, we conducted a stakeholder mapping exercise to distinguish primary and secondary stakeholders depending on whether the project was likely to engage with them. The mapping considered relationships between the stakeholders and the extent to which each was likely to affect adolescent mental health and well-being. León-Himmelstine et al. (2021: Annex 10) provide further details of this stakeholder analysis.

Table 13 Mapping of key actors and policy influencers relevant to mental health and psychosocial support (MHPSS) of adolescents in study/project locations

Institution	Role / purpose	Work relevant to adolescent MHPSS
MWANZA		
Local government authorities (Regional Executive Director; District Executive Director; Regional Administrative Secretary; District Administrative Secretary; Regional Medical Officer; District Medical Officer; Regional Mental Health Coordinator; District Mental Health Coordinator; Regional Education Officer; District Education Officer; Regional Social Welfare Officer; District Social Welfare Officer; Regional Community Development Officer; District Community Development Officer)	Manage and support education and health systems	Local governments are responsible for staff salaries (teachers and healthcare workers) and for funding schools and health facilities. Local governments are essential for community mobilisation and for scale-up of community-based mental health programmes.
NGOs (e.g. Mwanza Village of Hope, Femina Hip and Kivulini Foundation)	Gatekeepers and local resource provision	Training, capacity-building, gender, and health education, and promoting student engagement in societal activities.
Hospitals (e.g. Sekou Toure Regional Referral Hospital, Bugando Medical Centre, and respective district hospitals)	Health service delivery	Hospitals provide psychiatry and mental health staff, medical supplies and infrastructure for treatment and referral of people with mental ill health.
Community (adolescents, parents and teachers)	Partners in implementation Definition of acceptability of the training curriculum Supplementation of resources	Communities are gatekeepers for the contents of health education and for the role of non-health agents (especially teachers) in health service delivery. Adolescents actively participate in all aspects within schools. Communities supplement programme finance but are not the primary source.
MOROGORO		
Local government authorities (Regional Executive Director; District Executive Director; Regional Administrative Secretary; District Administrative Secretary; Regional Medical Officer; District Medical Officer; Regional Mental Health Coordinator; District Mental Health Coordinator; Regional Education Officer; District Education Officer; Regional Social Welfare Officer; District Social Welfare Officer; Regional Community Development Officer; District Community Development Officer)	Manage and support education and health systems	Local governments often support and are fund-holders for teachers and schools and for health facilities and healthcare workers. Local governments are essential for community mobilisation and for scale-up of community-based mental health programmes.

Table 13 Mapping of key actors and policy influencers relevant to mental health and psychosocial support (MHPSS) of adolescents in study/project locations continued

Institution	Role / purpose	Work relevant to adolescent MHPSS
MOROGORO		
NGOs (e.g. Femina Hip, Imara Trust, Kinara for Youth Evolution, and Free at Last Sober House)	Training and supervision, and local resource provision	NGOs work to support secondary schools, empower women, improve living standards, encourage youth participation in societal activities, public health education and promotion.
Hospitals (e.g. Morogoro Regional Hospital, and respective district hospitals)	Health service delivery	Hospitals provide psychiatry and mental health staff, medical supplies and infrastructure for treatment and referral of people with mental ill health.
Community (adolescents, parents and teachers)	Partners in implementation Definition of acceptability of the training curriculum Supplementation of resources	Communities are gatekeepers for the content of health education and for the role of non-health agents (especially teachers) in health service delivery. Adolescents actively participate in all aspects within schools. Communities supplement programme finance but are not the primary source.

Source: Review of secondary literature and knowledge of the Tanzania project team.

6.2 Access to and use of formal mental health services

This section describes respondents' experiences of using formal mental health services, and any shifts observed over time. Our baseline findings pointed to limited experience with formal mental health services among adolescents and adults in both study sites. This reflected personal beliefs, stigma, poverty, geographical location, and a limited number of dedicated mental health facilities, coupled with scarce human resources and a lack of awareness among adolescents and adults. This contrasts with what we observed in the endline study.

A small group of adolescents (8 girls and 6 boys) reported **using, or having previously used, mental health services in their schools or communities**. Of these respondents, just over half (57%) lived in Morogoro, the others lived in Mwanza. The issues for which they sought support ranged from bullying to family concerns or abuse. In addition to school counsellors, adolescents referred to various programmes such as the 'Fema club, which deals with problems facing the community', the 'Baraza la Watoto (children's council)', and 'general counselling services offered in hospitals'. Although an almost equal share of adolescent boys and girls knew of these services, only a handful had actually accessed them or participated in their programmes.

The provision of **mental health support to adolescents in schools** appears to be relatively recent, with one teacher indicating that it was initiated in their school after the training they received through the project in March 2022. Meanwhile, a few adolescents reported that they began accessing various mental health support programmes (Prevention and Combating of Corruption Bureau (PCCB) programme, in-school counselling services, Fema club, Baraza la Watoto, sporting activities and Highland in Bigwa[29]) at different stages in their education, ranging from standard 6 to form 2 classes. This suggests a growing recognition of the importance of mental health support within the education system.

> Mental health support to adolescents in this school began in March 2022, after [the project] training.
> (KII, teacher, Morogoro)

Adolescents who used formal mental health services reported **varying frequencies and durations** of usage. They revealed that mental health discussions sometimes occurred informally during regular classes. Adult respondents, primarily teachers, noted that students in immediate distress could consult in-school counsellors (teachers who have been appointed as counsellors without necessarily having expertise in psychology) or class teachers as needed. Regular sessions with counsellors were typically scheduled once a week. Despite the Government of Tanzania introducing guidelines for counsellors in schools and teachers' colleges in 2002, these are not readily available in public or private schools. This is primarily because most schools lack the necessary infrastructure and components associated with these services (Kazimoto, 2022).

> Students in urgent need have access to and are permitted to see class teachers or in-school counsellors anytime it is needed.
> (KII, teacher, Mwanza)

Providers of dedicated mental health services, such as clinical psychiatrists or doctors, also reported different frequencies and durations of service usage. Whereas one medical doctor reported seeing four patients a month with mental health conditions, service providers who operate clinics in Morogoro and Mwanza described seeing more patients, both within the clinic and sometimes at home.

> ...So, we were attending, like, four patients per month, but they were the same.
> (KII, medical doctor, Morogoro)

> I attend up to 70 patients per month, especially the patients with epilepsy.
> (KII, clinical psychiatrist, Mwanza)

According to several key informants, specifically those working in mental health services, **people are usually brought in by family members or other caregivers**. Although some individuals begin attending services alone after a period, normally they are accompanied (at least initially), to ensure they receive the necessary care and support.

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29   Highland in Bigwa is a Christian organisation that conducts awareness campaigns around HIV, safe sex and other subjects.

> There are patients who come to collect their medication and if they adhere to the dose they behave normally and sometimes they come by themselves to collect their medicines. Initially, they were accompanied by their family members but now they come alone.
> (KII, medical doctor, Morogoro)

> New patients don't come alone. Most of them are accompanied by other people. Some have been brought here by the police with the explanation of being picked up in the streets... Some patients have been brought here wounded, beaten because they were suspected of being thieves, but if you make a proper follow-up and diagnosis, you will find out that they have a mental health challenge.
> (KII, clinical psychiatrist, Mwanza)

> I: When did you start participating in these programmes?
>
> R: When I was in standard 6.
>
> I: Is it football?
>
> R: Yes, it is.
>
> I: How did you know about the programmes?
>
> R: Because where we live ... some are from the madrasa and some are just from the streets, so we play against each other.
>
> (IDI with 17-year-old boy in secondary school form 4 who co-created and participated in project activities; lives in Morogoro)

> Some mentally ill patients directly seek professional help here, coming straight from their homes.
> (KII, medical doctor, Morogoro)

Information about available mental health services seems to **spread organically among peers or through direct contact** with medical practitioners. For example, one adolescent participant learned about these services from peers at a madrasa (a centre for Islamic religious teachings). Some individuals may also, however, come directly to health facilities to access mental health services, as observed by a medical professional.

Adolescents also reported gaining exposure to and **participating in several programmes beyond mental health**, focusing on physical health, education, and community support. These included Highland in Bigwa, as well as interventions related to gender-based violence and other services from organisations such as the Tanzania Commission for AIDS (TACAIDS), Femina Hip and TanzED.[30] Other

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30   TanzED, a UK-based registered charity, formerly known as Joint Co-operation Tanzania, sent volunteer teachers from the UK to work alongside teachers in government primary schools in rural Tanzania. Its major priorities are to improve the learning environment and increase awareness among communities of the importance of education and every child's right to it. TanzED UK ceased its operations at the end of July 2022. However, TanzED Tanzania has continued some of that work by collaborating with organisations that provide remote teacher training and by ongoing efforts to enhance nursery classrooms in several primary schools. www.tanzed.org.uk

initiatives included Village of Hope, which offers comprehensive support to orphans and children from disadvantaged backgrounds.

> There are mental health services, also there is TanzED, a project implemented by Camara. They have brought us computers, so they trained us on how to use computers… Instead of teaching them theoretically now we are teaching practically.
> (KII, teacher, Morogoro)

6.3 Challenges in accessing and using mental health services

Lack of awareness of mental health issues, cultural beliefs and taboos, inadequate government funding, understaffed and underequipped health facilities, outdated guidelines, inadequate mental health training for healthcare providers, lack of mental health policies, and poverty were all identified (at baseline and endline) as the main challenges in accessing and using mental health services in Morogoro and Mwanza. These findings echo previous studies conducted in Tanzania (Kutcher et al., 2016; Ambikile and Iseselo, 2017; Kutcher et al., 2019).

The most frequently cited gap and challenge with current provision was the **lack of accessible mental health services** for individuals in need. Participants specifically mentioned the absence of 'counselling and addiction services' and suggested the establishment of youth-led groups or clubs where young people can 'have their own dedicated spaces for support'.

> Most people do not have access to mental health services. There is no clear strategy to reach out to adolescents facing mental health challenges, and there are no dedicated institutions or individuals tasked with addressing the mental health needs of adolescents.
> (KII, clinical psychiatrist, Mwanza)

> To begin with, it is evident that there is a lack of awareness regarding the seriousness of mental health issues among the general population. There is also a scarcity of accessible resources where individuals can seek help, such as counselling centres.
> (KII, teacher, Morogoro)

> In my opinion, we have not been successful in creating a sense of unity and closeness among the youth. It is crucial for us to identify and connect with young individuals, persuading them, if feasible, to establish their own club. If possible, we should revive the previous club and encourage their active participation.
> (KII, District Mental Health Coordinator, Mwanza)

Some respondents emphasised the crucial need to address the **lack of confidence in accessing mental health services**. They provided various reasons for this hesitation, including lack of service provision, stigma, privacy concerns, perceived ineffectiveness of services, denial of the severity of mental health issues or minimisation of symptoms, lack of support system, and previous negative experiences.

> There is a prevalent issue, particularly among Tanzanians, where seeking help is not a common practice until the situation deteriorates. People tend to avoid going to hospitals for advice and professional assistance, which can lead to depression and even suicide. Many individuals are hesitant to open up and discuss their situations with specialists, denying themselves the opportunity to receive talking therapy and enhance their self-esteem to better cope with challenges…
> (KII, clinical psychiatrist, Mwanza)

> They lack the courage to seek help and may be unaware of where to find assistance, resulting in a loss of confidence.
> (KII, director, Morogoro)

According to adolescents, barriers to accessing mental health services **related largely to scheduling conflicts, lack of confidence, fear of stigma, and cost**. These obstacles inhibited both access to mental health services and participation in programmes designed to help cope with psychosocial stress.

> …The majority of students here are occupied with their studies as the school timetable is tight, leaving little room for attending mental health services. Even during break time, we are focused on studying, which makes it challenging to find the time for mental health support.
> (IDI with 17-year-old girl in secondary school form 4 who co-created and participated in project activities; lives in Mwanza)

> A group of adolescents stopped accessing services because they could not afford it.
> (KII, medical doctor, Morogoro)

One critical factor cited by respondents was the lack of awareness and understanding of mental health issues among parents, leading to a lack of support for adolescents to deal with mental health challenges and to therefore access mental health support.

> Parents do not want to believe that their children can have mental health challenges, and that makes them less cooperative if you want to involve them in the matters concerning their children.
> (KII, teacher, Mwanza)

Some respondents, especially a few older adolescent boys living in Mwanza, reported never having accessed or used mental health services before, primarily **due to a lack of knowledge**. This appears to affect boys more than girls, perhaps owing to norms around masculinity. Some students were simply uninterested in other options available to them, emphasising their preference for the mental health clubs over other types of service or group.

> The only club I like here at school is mental health [club], despite the fact there are other clubs such as Fema and PCCB [Prevention and Combating of Corruption Bureau]. I really don't like them.
> (IDI with 18-year-old young woman in secondary school form 4 who took part in non-digital project activities; lives in Mwanza)

Some adolescents showed a desire to access mental health services or participate in related programmes but faced obstacles, including lack of permission from parents or the programme ending. For instance, one 17-year-old girl was ordered by her parents to leave a Fema club she was a part of, as they believed her sole focus should be on her studies.

Teachers and service providers' feedback highlighted structural issues impacting mental health services, including **inadequate government funding, outdated guidelines, acute staff shortages, and a lack of priority given to mental health units**. Service providers also reported shortages of essential resources like medication and protective equipment, further exacerbating the complexities involved in delivering effective mental health services.

> Insufficient government funding is a major challenge. Recent incidents are highlighting this concern, but dormant units, including mental health, lack updates and current medical guidelines. Outdated guidelines continue to be used.
> (KII, District Mental Health Coordinator, Mwanza)

> As social workers, our responsibilities involve providing counselling and related services. But the shortage of mental health specialists, psychologists and psychiatrists poses a significant challenge. For instance, at our hospital, we have only one specialist, and they are not readily available in all districts. In some cases, you may find these specialists in only four or five local councils. This scarcity of service providers creates a gap in addressing mental health problems, despite their prevalence in our communities.
> (KII, Social Welfare Officer, Mwanza)

Moreover, mental health providers underscored the importance of having supplementary resources, such as brochures and educational materials, the use of mass media platforms such as radio, and the integration of mental health topics into school curricula, facilitated by teachers with expertise in psychology. These measures aim to increase public awareness and understanding of mental health issues. The availability of reliable transportation was also highlighted as crucial for efficient service provision.

> I believe the main issue lies in the shortage of mental health specialists who can truthfully guide adolescents. A viable solution would be to integrate these subjects into the curriculum and deliver them within the classroom setting, offering an effective resolution.
> (KII, patron of Fema club, Mwanza)

> Indeed, there has been a substantial increase in mental health education in the Mwanza region. We also actively engage in educating the public through radio programmes that focus on the detrimental effects of violence and how it impacts people's mental well-being.
> (KII, Regional Social Welfare Officer, Mwanza)

Many mental health service providers asserted that the majority of the people they see come from poor backgrounds. These people, hailing from remote villages, encounter considerable obstacles in accessing mental health support due to their lack of resources. It was also observed that more males than females sought and utilised these services. Project team observations suggest that one possible reason is that girls may not be taken

seriously when they express their emotions and may even be labelled 'hysterical'. There is clearly a need for more research in this area. Nonetheless, the findings underscore how socioeconomic factors can influence accessibility of mental health services, highlighting the need for targeted interventions to address the disparities faced by disadvantaged populations.

> Many patients are from poor family backgrounds and have a low socioeconomic status. Some of these patients are from interior villages. Additionally, some of them do not seek immediate medical attention at the hospital when they face these challenges.
> (KII, clinical psychiatrist, Mwanza)

Conversely, a few adult respondents expressed the perception that richer or financially secure families are more likely to access mental health services, though none of these individuals were service providers. This belief was attributed to their ability to afford the costs associated with these services.

However, one theme that emerged consistently was the link between low socioeconomic status and mental health issues. Factors such as 'poverty-induced stress' were reported as significant triggers for mental health problems, highlighting a possible correlation between financial hardship and the prevalence of mental health conditions.

> In terms of economic status, the majority of them are poor, and in terms of male and female, the majority are male.
> (KII, clinical psychiatrist, Morogoro)

Linked to this, continued engagement with mental health services was identified as a challenge in terms of people's **inability to afford prescribed medications**. A medical doctor in Morogoro explained that there was a shift from providing medicines for free to requiring patients to pay for them out of pocket, or have a Community Health Fund. This change resulted in several patients discontinuing their visits to the clinic. This implies a critical need for financially accessible mental health resources in the community.

> There was a time when medicines were scarce, we asked them to come to the clinic but none of them showed up. They said, 'whenever we come here, we are asked to go and buy the medicines'… When they were told either to have a Community Health Fund or to pay cash for the medicines, they did not come back. They said, 'we can't afford because initially we were getting them for free but now, we are being told to go and buy them'.
> (KII, medical doctor, Morogoro)

Together, these themes underscore the need for a more comprehensive approach to address the complex barriers that hinder the accessibility and efficacy of mental health services for adolescents, particularly those from disadvantaged households.

6.4 Changes in access to and use of mental health services resulting from the intervention

Several adolescent participants noted that their involvement in the intervention positively influenced their engagement in additional activities and services aimed at managing psychosocial stress. For instance, two adolescents living in Morogoro shared that the programme

encouraged them to actively take part in sports as a stress-relieving strategy. Another participant found that the programme helped him join various social clubs at school, promoting social interaction and reducing isolation. However, one adolescent boy in Mwanza did not attribute his participation in the programme to any increase in access to other services.

> **In the mental health programme, we were taught the importance of socialising with other people, that we should spend time with other people, playing together and all that. That helps in handling stress.**
> (IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

Several respondents observed noticeable improvements in mental health services available in schools following implementation of the intervention, including improved relationships with their counsellors or mental health teachers. They also noted increased efforts by teachers to provide guidance to adolescents, contributing to a decrease in student suspensions. Some adolescent girls also reported lower stress levels due to these interventions.

> **R6: I believe there has been an increase in the provision of advice. This month, in particular, I've noticed that he [mental health teacher] has been actively reaching out to many girls and some boys to offer guidance. It is evident that this active involvement has contributed to the overall progress and success of the programme.**
> (FGD with fathers living in Mwanza)

> **Support for students is given on a daily basis, particularly by class teachers. Speaking from my personal experience, I began offering mental health support around March of last year … following the [project] training.**
> (KII, teacher, Morogoro)

Key informants, particularly teachers, acknowledged the specialised support introduced by the intervention, which they believe has enhanced students' confidence and overall mental health and well-being.

> **Since the establishment of this club, we have observed noticeable changes among students, as they now feel empowered to confidently express their concerns and grievances about what they perceive as unfair.**
> (KII, teacher, Mwanza)

The programme's influence extended beyond reducing stigma, as it also reportedly improved mental health service delivery. Both adult and adolescent respondents noted this shift by endline, stating that mental health services had become more accessible within schools. As mentioned earlier, because of the training provided as part of the intervention, teachers reported being better equipped to address students' mental distress, fostering a healthier and more responsive environment. Mental health is also now discussed more frequently, making it a more mainstream and accepted topic in school settings.

7 Effects of the intervention on coping strategies

This chapter delves into the impact of the intervention and associated activities on participants' informal coping mechanisms and interpersonal relationships. Drawing on both quantitative and qualitative data, the chapter examines positive and negative coping strategies, and seeks to identify any changes brought about by the intervention. We focus not just on the evident behavioural changes, but also on subtler shifts in mental resilience and relationship dynamics that could pave the way for longer-term mental well-being.

7.1 Description of findings from the quantitative study

We sought to measure adolescents' coping strategies quantitatively using the Kidcope scale, consisting of 22 items with binary 'yes' or 'no' responses (see Chapter 2, Table 4). Using pooled data from the baseline and endline surveys, we produced subscales for three types of coping strategies: active, avoidant, and expressive/emotional (Figure 8; for details of the exploratory factor analysis used to create the subscales, see Annex 5).[31] **Active coping**, the most common strategy, includes items relating to problem-solving, seeking social support, cognitive restructuring and distraction. **Avoidant coping**, the second most common strategy, includes items relating to social withdrawal and self-criticism.[32] **Expressive or emotional coping,** the least common strategy, includes items relating to emotional regulation and seeking social support.

Our analysis examined the impact of the intervention on the three coping strategies at baseline and endline, for the control and treatment groups respectively (Table 14). The analysis demonstrates a marked rise in the use of active coping among adolescents in the treatment group only, and points to no change in the subscales measuring the use of avoidant and expressive coping strategies.

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31 Initial analysis revealed that previous categorisations of coping strategies did not fit our data in Tanzania (nor in Viet Nam). This includes the categorisation derived from Spirito et al. (1988) (who did not themselves conduct a factor analysis of their scale) and those based on empirical analyses using Kidcope which have found alternatively two factors (Cheng and Change, 2003; Marsac et al., 2016; Ernestus et al., 2023), three factors (Abdelmageed et al., 2022; Vigna et al., 2010), and four factors (Vernberg et al., 1996). Per Antoniou and Drosos (2017: 62) 'even the studies with the same number of factors did not find the same factor structure. The [research suggests] that Kidcope's factor structure is not stable and may vary across diverse samples'. Nonetheless, the three-factor structure we elaborate here appears to hold in both Tanzania and Viet Nam, a finding we will explore further in future research.
32 The inclusion of the item 'I meditate' ('Nilitafakari' in Swahili) as an avoidant strategy requires further investigation.

Figure 8 Coping activities used when last feeling tense or facing problem or difficulty (pooled data)
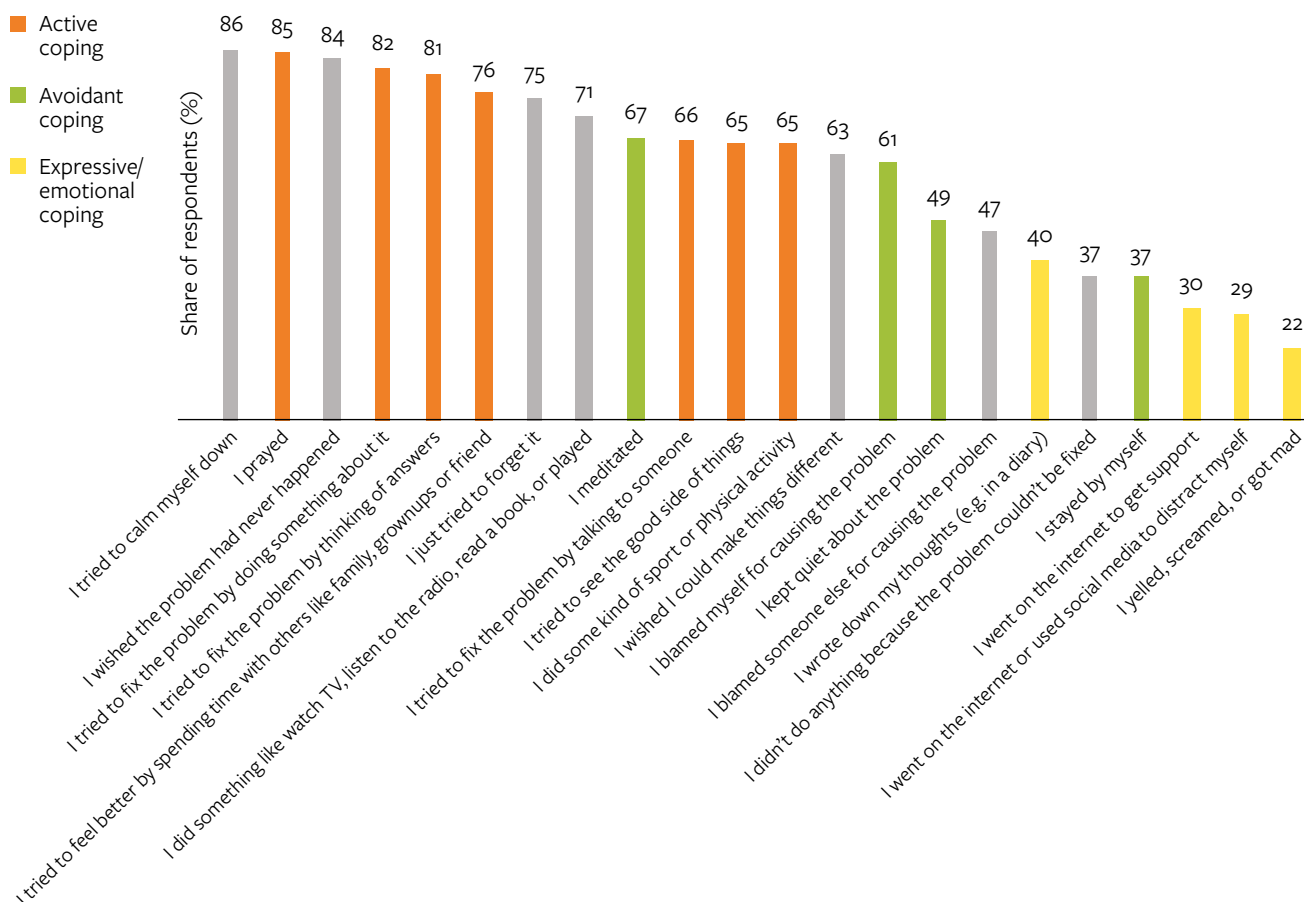
Note: Active coping responses are coloured in orange; avoidant coping is coloured in green; and expressive/emotional coping is coloured in yellow. These three dimensions resulted from exploratory factor analysis (EFA) to identify the latent structure (see Annex 5 for details). Blue patterned responses loaded on more than one factor so are not categorised.

Table 14 Scores for the three subscales of the Kidcope scale between baseline and endline, treatment and control groups

a. Treatment group

	Baseline	Endline	pct pt change	p-value
Active	70.00	85.18	15.18	0.000
Avoidant	34.87	36.94	2.07	0.575
Expressive	49.47	52.38	2.91	0.437

b. Control group

	Baseline	Endline	pct pt change	p-value
Active	75.75	77.68	1.93	0.212
Avoidant	29.22	32.9	3.68	0.065
Expressive	54.92	54.28	-0.64	0.75

Note: The three sub scales are the average of items within each category, rescaled to range from 0 to 100, with higher values representing a higher tendency to use the corresponding coping strategy.

Looking more closely at item-level change shows that of the 7 items in the 'active coping' subscale, 6 show statistically significant rises among treatment group adolescents (all items excepting engaging in sport or physical activity), with rises of between 9 percentage points (prayer) and 25 percentage points ('I tried to see the good side of things') (Figure 9). In contrast, for adolescents in the control group, the only statistically significant change was a 9-percentage point increase in the share of respondents who 'tried to see the good side of things'.

Our regression model affirms that the intervention had a positive impact on active coping strategies. After introducing socio-demographic controls, the model shows that:

- the coefficient for the time dummy is not statistically significant (p=0.447), suggesting no strong evidence of a change in active coping strategies from baseline to endline for the control group;
- being in the treatment group is not significantly associated with any differences in active coping scores compared to the control group at baseline (p=0.518);
- the interaction term (11.8458, p=0.006) is statistically significant, suggesting an increase in the use of active coping strategies from baseline to endline for the treatment group, over and above the main effects of being in the endline or treatment group.

Figure 9 Changes in use of active coping strategies (Kidcope subscale) between baseline and endline, treatment and control groups
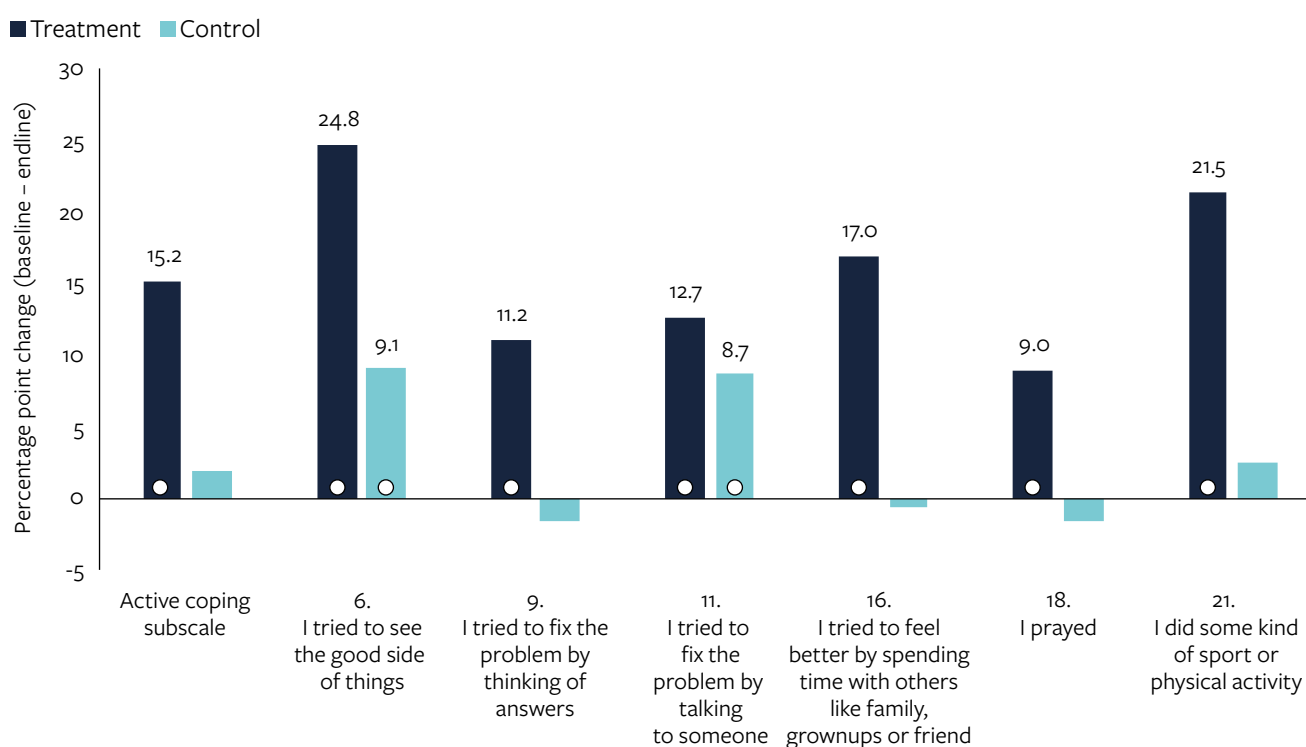
Note: Circles denote statistically significant changes (p<0.05).

None of the avoidant strategies showed any statistically significant changes between baseline and endline for either the treatment or control group. The only expressive strategy showing change was a nearly 9-percentage point rise in the share of adolescents in the control group using the internet to seek support (potentially an effect of increased access to technology school-wide, see Chapter 8). Other marked changes were in other forms of seeking distraction (watching TV, listening to the radio, reading a book, playing) and in wishful thinking (wishing the problem had not happened or that the respondent could make things different) – with marked and statistically significant increases in the share of adolescents in the treatment group using all three strategies and an increase in the share of adolescents in the control group who wished they could make things different (Figure 10).

7.2 Positive coping strategies

The qualitative study identified various positive coping strategies among participants, many of which echoed items in the Kidcope scale. Some involved solitary activities such as listening to music, watching movies, reading, or carrying out school-related tasks. Other strategies involved interacting with others – for example, playing outdoor games, confiding in trustworthy individuals such as family, friends or neighbours, and seeking solace through prayer at church. Adolescents also mentioned digital games and practising breathing exercises (which they learned during the intervention). We examine these responses further in this sub section.

Figure 10 Changes in use of unclassified coping strategies (Kidcope) between baseline and endline, treatment and control groups
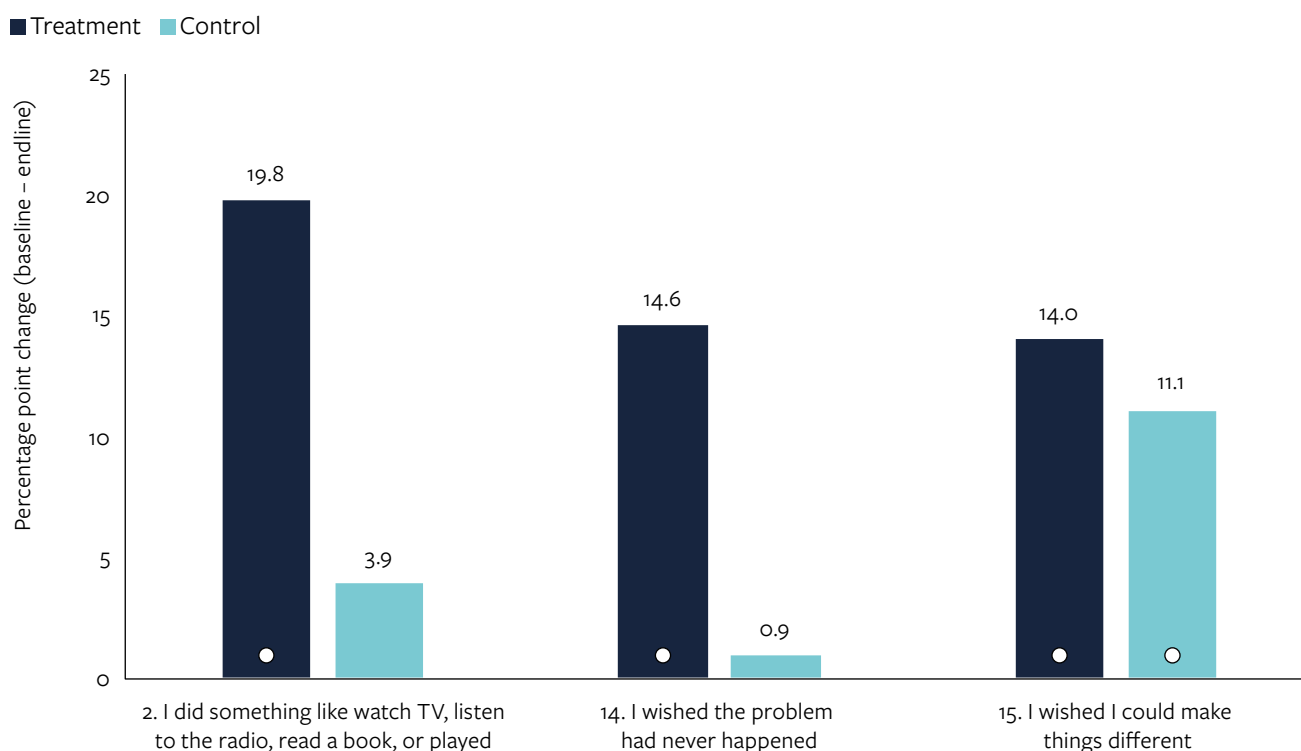
Note: Circles denote statistically significant changes (p<0.05).

7.2.1   Confiding in others

Feedback from adolescent participants in both sites, boys and girls alike, revealed that a significant majority sought support and guidance when they felt upset or in need. They commonly choose to **confide in trusted individuals**, such as family members (parents, siblings or other relatives), neighbours or close friends. These findings highlight the importance of trusted relationships in adolescents' lives and their inclination to seek support from individuals they feel close to.

> I can share my feelings and thoughts with my friends or family when I am unhappy or sad.
> (IDI with 12-year-old boy in primary school class 7 who led and participated in project activities; lives in Morogoro)

> I am an indoor person. I was only going outside my room when my aunt came back from work but since I joined the mental health programme I started spending time with my sisters and share stories instead of isolating myself in my room.
> (IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

Approximately half of adolescents in the endline qualitative study revealed that they confide in their **parents** to share their feelings or discuss their problems. This finding was further supported by adult respondents, who mentioned that either they themselves or their children seek assistance from parents. Interestingly, a majority of both adults and adolescents, regardless of gender, tend to approach their mother more frequently than their father. This inclination can be attributed to

personal preference or the fact that fathers are often absent for various reasons. However, it is important to mention that some respondents expressed their willingness to talk to their father, but ultimately chose to talk to their mother first.

> I only share my feelings with my mother because she is the only person I live with at home.
> (IDI with 17-year-old girl in secondary school form 4 who participated in project activities; lives in Morogoro)

Our baseline and endline research found that some adolescents sought mental help from their **siblings**. This was corroborated by adult respondents, including parents and aunts of the adolescent participants.

> When I am sad, I always share it with my brother, he takes care of it.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

Interestingly, more than half of these adolescents (both girls and boys) reported that they tended to talk to a sister more than a brother. When asked why, one participant stated, 'she is a person I believe in, and she is the one I talk to about everything'.

> Apart from his sisters, there is no one else he can turn to for support when he is sad.
> (IGT with 59-year-old mother of 17-year-old boy who participated in project activities; lives in Morogoro)

A few adolescents during in-depth interviews, and adult respondents, noted that adolescents also seek support from **other relatives**, including their grandmother, grandfather, aunt or uncle. These extended family members play a significant role in providing support and guidance to adolescents during times of need, highlighting the importance to adolescents of a range of familial bonds. Encouraging and nurturing these connections can provide additional avenues for support and contribute to adolescents' overall well-being.

> **When I feel sad or unhappy I try to talk to someone who is older than me, especially my grandmother.**
> (IDI with 17-year-old girl in secondary school form 4 who co-created and participated in project activities; lives in Mwanza)

Family members were also a source of support to mental health professionals in their personal life, with one professional expressing that she finds comfort and support from her close family members, specifically her mother, aunt and husband during periods of stress.

A notable finding from the interviews was that over half of the adolescent participants (13 of which were male and 10 female) sought help from their **peers** when facing various problems. A few adult respondents affirmed this view, suggesting that adolescents tend to initially reach out to their peers, who then escalate the issue to a teacher or someone they believe is better equipped to provide assistance. This preference for peer support suggests that adolescents feel more comfortable sharing their concerns with friends who can empathise with their experiences. Peers provide guidance, validation, and a listening ear. This peer-to-peer support system underscores the importance of cultivating a supportive and empathetic environment among adolescents, where they can openly discuss their concerns. It also highlights the role of trained professionals, such as teachers, who can identify when additional support is required and offer appropriate guidance or referrals.

> **I talk to my close friend at home because sometimes my mother goes to work, and it may happen that at that time I need advice.**
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

> **Another adolescent might approach his friend and that friend can come to the office and state 'there is someone who told me this'. Then you have to call him. And most of the time I don't send a letter for a call. I normally ask a person I have a need to see you. Let's meet at this point.**
> (KII, Village Executive Officer, Morogoro)

In addition to confiding in family members and friends, a minority of respondents noted that some adolescents seek support from other informal mental health service providers such as 'teachers', 'village chairpersons' or religious people, or from traditional medicine or traditional healers. These diverse community members play an important role in adolescents' lives, providing a different perspective and specialised support.

> ...I talked with my teacher. He told me to accept the situation because it has already happened.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

> People get help from the community experts, traditional healers. It is African culture. Those are normal things.
> (KII, Regional Social Welfare Officer, Mwanza)

> First, I asked advice from my friends, and they told me that if they beat you that much then you have to leave the house. But when I asked for advice from my mother, she told me that you have to go ask your father for forgiveness, he is your father, he will understand. She told me that if your friends are telling you to leave the house, then leave and never come back.
> (IDI with 17-year-old girl in secondary school form 4 who co-created and participated in project activities; lives in Mwanza)

Most adolescents who shared their problems with trusted individuals such as parents, siblings or friends reported receiving support and feeling better as a result. They found their confidante's advice to be valuable. Adult respondents confirmed this pattern, reporting that they offer advice to reassure adolescents. However, not all experiences were positive. One adolescent found confiding in peers to be 'useless', while another reported receiving poor advice from friends; in contrast, she found more useful guidance when speaking to her mother. These findings highlight that although most adolescents benefit from seeking support and advice from trusted individuals, experiences can vary. Some adolescents find comfort and effective guidance within their peer group, while others rely more on family members. This variation emphasises the significance of diverse support networks and recognising the unique needs and preferences of each adolescent. Encouraging open communication and providing access to both peer and adult support can ensure that adolescents receive the assistance that suits them best.

7.2.2 Using distractions to cope with stress

The qualitative study revealed that more than half of adolescent participants used **distractions** to cope with mental stress, including 'watching movies or cartoons', 'participating in sports', 'playing with friends', 'reading storybooks, magazines, or newspapers', 'listening to music' (including gospel songs), 'playing digital games' and 'studying'. This echoes previous research, which found that in some contexts, including Tanzania, distraction is indeed a positive coping strategy for adolescents (Cherewick et al., 2015; 2023a; 2023b). Adolescent boys most commonly reported watching television and exercise/sports while girls appeared more likely to read, study or spend time with friends.

> When I am lonely, I used to listen to music, watch cartoons or read storybooks.
> (IDI with 17-year-old boy in secondary school form 4 who co-created, led and participated in project activities; lives in Morogoro)

According to adult respondents, some adolescents cope with stress by engaging in activities such as 'writing', 'securing paying jobs' or 'doing housework'. These activities provide a sense of purpose, productivity and accomplishment, which can help alleviate mental stress. These findings suggest that allowing for diverse coping strategies and fostering a supportive environment can enhance adolescent well-being and provide them with the tools they need to navigate mental stress effectively.

Some adolescents reported using **additional methods** to cope with mental health issues, including practices such as 'praying' and 'breathing exercises'. This observation was confirmed by a handful of adult respondents. For instance, one mental health professional described using breathing exercises and **positive affirmations** to support adolescents in managing their mental stress. Recognising and respecting these individual coping mechanisms can enhance support for adolescents' mental health.

> When she is sad, she would read, write and pray.
> (IGT with 25-year-old sister of 14-year-old girl who participated in project activities; lives in Morogoro)

7.3 Negative coping strategies

This section explores adolescents' negative coping strategies, revealing self-isolation and sleep as avoidance behaviours and, among a minority, bullying and a reluctance to share problems with others. A very few adolescents reported having engaged in self-harm, and there were also reports of severe depression and suicidal ideation, notably linked to low self-esteem and familial issues. Accounts of adolescent marijuana

use in Morogoro underscore substance abuse as a coping mechanism. Although the baseline study recorded similar findings, the endline qualitative study appears to show a reduction in these unhealthy forms of coping.

7.3.1 Avoidant behaviours

In instances of mental distress, some adolescents reported that their preferred **coping mechanism is self-isolation**. This involves distancing themselves from friends and family until they regain their emotional balance. Adult respondents who interact closely with these adolescents corroborated this behaviour.

> After my anger subsides, I tend to withdraw and isolate myself. When I return home, I often find my mother in a calm state as well.
> (IDI with 13-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

> I think maybe it is because of studies or she is not free to tell her aunt [the primary caregiver] something, that is why she isolates herself. Sometimes I can go to her room and tell her to come and watch TV. I think it is because she can't talk with her aunt.
> (IGT with 25-year-old sister of 14-year-old girl who participated in project activities; lives in Morogoro)

A minority of adolescent boys and girls reported that they were **reluctant to discuss their problems** with others owing to pride, fear of stigma, fear of punishment or worries over confidentiality. For some adolescents, the individuals they wanted to confide in were

unavailable or inaccessible. They also reported a belief that their problems were not significant enough to share or that seeking help would be futile. A few adult respondents echoed these sentiments, emphasising the obstacles that prevent some adolescents from seeking support and opening up about their issues.

> I haven't told my father yet that my mother is beating me because he leaves early in the morning and comes back at night without even seeing me.
> (IDI with 12-year-old girl in primary school class 7 who co-created, led and participated in project activities; lives in Mwanza)

> You know, students are the ones who are supposed to choose a counselling teacher, not the headteacher. The point is, students are supposed to be comfortable around that teacher. If a teacher is very strict and not friendly, children cannot go to him/her when they face challenges. There are things that are very private.
> (KII, patron of Fema club, Mwanza)

In response to feelings of depression or anxiety, a small number of adolescent participants reported using **sleep as a coping mechanism.** Indeed, this is echoed in the broader literature on adolescent coping strategies (see, for example, Tu et al., 2015; Wang and Yip, 2020). In particular, two 14-year-old boys in Morogoro both reported using sleep as a way to escape from emotionally distressing situations, such as being wrongly accused of something at home. Adult respondents also reported instances of adolescents suppressing or ignoring their feelings as a way of coping.

> I was slandered at home. I was forced to agree with a mistake that I didn't make. I became angry and sad. So, I decided to sleep so that I could forget what happened.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

7.3.2 Engaging in risky behaviour

Although most adolescents reported no instances of self-harm, a small subset disclosed contemplating or even engaging in **self-harming behaviours** in response to family conflicts or academic pressures. For instance, a 17-year-old girl in Mwanza, who did not participate in the intervention, nearly attempted self-harm with a knife following a severe altercation with her aunt. Another 17-year-old girl from Morogoro considered poisoning herself in the event of failing exams, while a 12-year-old girl from the same region admitted to physically hitting herself following a failed exam.

> They found me about to stab myself, I was too angry.
> (IDI with 17-year-old girl in secondary school form 4 who did not take part in project activities; lives in Mwanza)

A small proportion of adolescent participants reported experiencing severe depression, with some even **contemplating suicide**. One adolescent girl from Mwanza detailed her previous suicide attempt prompted by a domestic dispute, emphasising the crucial role of mental health education in teaching her effective coping mechanisms. Another adolescent expressed suicidal ideation stemming from a profound lack of self-worth but did not act on these thoughts.

> R3: …I faced a mental health problem when I was in form 2. I remember the school was closed, a conflict emerged at home, I became too angry. I thought about killing myself, I almost did it. My father found me trying to commit suicide and he stopped me. After receiving mental health education now, I know how to cope with mental health problems that I face, and I know how to control anger. So, there are such challenges.
> (FGD with adolescent females aged 17–18 living in Mwanza)

There were also some accounts of adults expressing suicidal tendencies due to financial hardship, which sometimes manifested in aggressive or harmful behaviour towards others.

> I have witnessed one man … who wanted to harm his daughter. But we made an effort with my village chairmen who gave him a room to rent. He wanted to hit and harm her. Also … one man came but he was not good psychologically because he was bankrupt. So, he was saying, 'I wish even to kill myself'. I told him no, that's not a solution.
> (KII, Village Executive Officer, Morogoro)

Despite these troubling instances, most adolescents reported not having had such extreme thoughts.

All adolescent participants reported that they had not engaged in any **substance use**, including tobacco and alcohol consumption. Their responses, which were corroborated by familial accounts, suggest a notable absence of such behaviour across the sample group. However, although all adolescent participants firmly denied any personal

use of illicit substances such as marijuana, some responses suggested substance use among their peers. Specifically, a 12-year-old boy from Morogoro acknowledged the prevalence of marijuana use among adolescents in his locality. This observation was substantiated by a village executive officer in Morogoro, who noted systemic cannabis consumption in the area, and outlined what the community was doing to combat the problem.

> Females, but also males, drink and smoke cannabis. Now we have put procedures in place as a village when we realise if there is any group using cannabis, we secretly look for them and catch them during night time and send them to the police station. And we have reduced those groups because at [name of the village] nowadays I don't have groups of cannabis smokers unless they start today, or the coming days and we continue hunting them every day.
> (KII, Village Executive Officer, Morogoro)

7.3.3 Aggression towards others

Although most adolescents reported not having engaged in violent acts or witnessed violent interactions resulting from mental stress, **a minority admitted to bullying behaviours**. This was reported to take various forms, such as forcibly taking another's possessions, borrowing and refusing to repay, or even physical assault. These adolescents did not directly associate their bullying behaviour with their own mental health struggles. However, one adult respondent observed that some adolescents may resort to bullying others as a coping mechanism for their own stresses. Overall, a significant number of adolescent respondents maintained that they had never participated in bullying or abusive behaviour.

> I: Did you face any problems here at school such as bullying, theft, etc?
>
> R: Yes, I was under stress, and I bullied someone.
>
> I: What did you do to him?
>
> R: A form 1 student came and took a chair... When I told him to return it, he refused, so I slapped him.
>
> (IDI with 19-year-old young man in secondary school form 4 who participated in project activities; lives in Mwanza)

7.4 Any changes as a result of the intervention

At both baseline and endline, adolescents described how they enjoyed spending time with family members such as parents (particularly mothers), siblings, aunts, uncles and grandparents. Adolescents held mixed views regarding changes in family relationships due to the intervention. Some adolescent participants suggested that they no longer argue with their relatives to solve problems, but talk instead. Others observed that rather than isolate themselves if they face a problem, they now approach their relatives and talk about their concerns. Several participants shared examples about how they used the skills or knowledge they gained during the intervention to mediate issues within their family, leading to an improvement in the familial well-being.

> ...at home they [father and uncle] used to quarrel ... I told them not to quarrel because it can lead to mental health problems. In the end, they stopped fighting.
> (IDI with 13-year-old girl in primary school, Morogoro)

Adult participants, during intergenerational trios, also observed that the intervention improved adolescents' relationships within the family. For example, some adults described improvements in participants' behaviour (such as showing more respect to siblings) as well as greater openness with family members when adolescents have a problem.

> Initially when she [programme participant] had a problem, she would not tell me and we would also not sit like this as she was afraid. But now, if she had a problem, she would come and say, 'I am in need of something'.
> (IGT with 34-year-old mother of 17-year-old girl, Morogoro)

Furthermore, several adult respondents described how adolescents now enquire into the well-being of other family members and offer advice they have learnt through the intervention.

At baseline and endline, adolescents reported that close friends (mainly from school) play an important role in their lives. Most commented that their relationship with their friends had changed positively since the intervention. For example, a handful of adolescents described being able to better control negative emotions such as anger and to better handle conflict with their friends.

> As you can remember last time when you came, I told you that I had a conflict with my friend. Through your programme we have been able to solve our conflicts and our relationship has become stronger. The same thing has happened to my other friends.
> (IDI with 19-year-old young man in secondary school, Mwanza)

In addition, several adolescents highlighted that taking part in the intervention with their friends has brought them 'closer'. Adult participants from intergenerational trios confirmed that the intervention had helped their adolescent to improve their friendships. For instance, the sister of one participant who took part in the intervention described how he now has 'courage' to console and encourage his friends. Another respondent from an intergenerational trio suggested that their sister now forgives friends more easily in the event of disagreement. However, a handful of participants indicated that there were no changes in their relationship with their friends as a result of the intervention. Within this group of participants, most did not provide a reason.

According to several adult respondents, the implementation of targeted interventions in schools has led to **notable improvements in students' support systems.** With increased efforts to provide guidance and support to students, disciplinary issues and disruptive behaviours were reported to have decreased. As a result, students are better equipped to navigate challenges, resulting in a decrease in suspensions and a more conducive learning environment for all.

> R9: Efforts to advise adolescent girls and boys (in schools) have increased and in turn, student suspensions had decreased also.
> (FGD with fathers living in Mwanza, some of whom were teachers or involved in the school's parent committee)

> Since the implementation of this mental health programme, there have been no reported instances of him beating his fellows or engaging in theft.
> (IGT with 25-year-old aunt of 12-year-old boy who led and participated in project activities; lives in Morogoro)

A number of adolescent and adult respondents noted a **significant increase in self-confidence among adolescent participants** following the intervention**.** This newfound confidence was not just limited to seeking help or confiding in others, but also extended to other areas of their lives. For instance, one adolescent participant reported that the programme gave her the confidence to interact more openly with her peers. Similarly, the father of a female participant observed an improvement in his daughter's academic performance, attributing this positive change to her increased confidence. The programme was also credited with enhancing the self-esteem of participants who previously doubted their worth in the community.

> The mental health club has made me self-confident and improved the way I now express myself.
> (IDI with 12-year-old girl in primary school class 7 who co-created and participated in project activities; lives in Mwanza)

> ...before the programme some of the children doubted their value in the community, but after they were made aware of mental health and being counselled based on their challenges, they started believing in themselves. Some thought they can do anything bad because they had neither parents nor relatives, and they believed they would just die someday. But after they were counselled and made aware of mental health, they recovered from that and developed self-awareness.
>
> (KII, psychiatric nurse, Mwanza)

Most adolescent participants reported **significant changes in how they manage mental health challenges** after the intervention. Coping strategies they described using included deep breathing exercises, socialising with peers or loved ones, and engaging in activities to distract from their worries, such as sports or music.

> We also learnt the importance of staying calm and practising breathing exercises when faced with problems or feeling nervous. I have personally put this into practice and found it to be beneficial.
>
> (IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

Several participants reported **a decrease in the use of negative coping mechanisms** since their involvement in the programme. Two adolescent respondents, who had previously engaged in self-harm, shared that they no longer felt the desire to harm themselves after participating in the intervention**.** Notably, the programme has contributed to a reduction in bullying, as indicated

by a number of adolescent participants and the aunt of one boy who took part. Furthermore, a few adult participants learnt through their children that behaviours such as excessive drinking, drug use, or school dropout could indicate a cry for help or a misguided attempt at managing mental health issues. Consequently, the participants not only learnt more effective strategies to cope with their own challenges but also gained the ability to support those exhibiting similar symptoms.

> I have stopped engaging in self-harm as a response to exam failure.
>
> (IDI with 12-year-old girl in primary school class 7 who participated in project activities; lives in Morogoro)

> Initially, some of the children liked to self-isolate but after attending the sessions and becoming aware, whenever they find their peer in that situation, they help him or her.
>
> (KII, teacher, Morogoro)

A small number of adolescents expressed that their **methods for managing mental health issues had not changed** as a result of the intervention**.** These respondents were generally those who had already been employing positive coping strategies, such as participating in sports and socialising. Similarly, several adult participants saw no changes in the behaviour of adolescent participants or in the broader community following the intervention. One mother observed that her son had not changed because he has always been 'a good boy and he is not violent'.

Although participation in the programme has helped some adolescents feel more comfortable

seeking help or sharing their distress, **several adolescents and adult respondents highlighted a persistent barrier: a lack of confidence to reach out for help during moments of mental strain**. Factors contributing to this reticence include limited knowledge about where to find appropriate help, fear of potential stigma, and difficulties in identifying or articulating their problems.

> From what I see and the experience I have of people and the way we live with them, the level of seeking help is very low, very few are busy looking for help, few who recognise that I am in trouble right now. Others let things go on their own, wait, 'sir, one day I will be fine or if something goes well, I will be fine'.
> (KII, administrator and chaplain, Mwanza)

> I think before she joined the programme, she was not confident to come to me directly to ask for something. I think this programme has helped her to be more confident. She has never come to me and asked for something directly but last month she did that.
> (IGT with 60-year-old father of 17-year-old girl who co-created and participated in project activities; lives in Mwanza)

8   Effects of the intervention on technology usage for mental health

This chapter investigates the role of technology in addressing mental health issues and the impact of the digital component of the intervention. The chapter details the types of digital content that students access, how and where they access it, and the perceived benefits and challenges associated with technology use, from the perspective of adolescents and their parents/caregivers. When we explore the effects of the intervention on technology use, we find a marked increase in access to computers among intervention participants alongside some increase in internet usage and in the share of adolescents who report having used the internet to access mental health information. This analysis suggests that digital approaches may be important for future mental health-focused interventions, both because of their role in motivating students to participate and as an avenue through which to access confidential advice about mental health. However, the discussion also highlights the need to provide guidance to adolescents in how to use technology safely, underlining the importance of a blended (in-person and digital) approach in intervention design.

8.1   Use of technology

8.1.1   Which technology is used, how, how often, and where?

According to our quantitative survey, around 15% of adolescents reported having a mobile phone for their own personal use, at baseline and at endline. Equally, the qualitative research found that a substantial number of adolescents in the in-depth interviews and intergenerational trios – boys and girls, and in both sites (Mwanza and Morogoro) –

do not own their own mobile phone. However, our findings suggest that they have substantial indirect access to a phone, predominantly through their mother. Indeed, according to our survey, just over one-third of adolescents at baseline and around half at endline reported having used a mobile phone with internet access at least monthly in the previous year. Nonetheless, some adolescents were not permitted to use a phone, even when one was available within their household. Of the minority of interviewees reporting personal phone ownership, about half owned a smartphone.

> My mother owns a mobile phone. Occasionally, she downloads games, but if you ask to use the phone, she declines.
> (IDI with 12-year-old girl in primary school class 7 who co-created and participated in project activities; lives in Mwanza)

None of the in-depth interview or intergenerational trio respondents reported personal ownership of a computer. Despite this, access to a computer was still possible for many adolescents, primarily through their school. This highlights the importance of schools in providing technological access to adolescents who otherwise would not have access.

> I don't have access to a computer in my home. Usually, I use them here at school.
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

These observations about mobile phone and computer use underline the significant role of familial and institutional resources, such as schools, in shaping digital access for adolescents.

8.1.2   Mental health material accessed, and frequency of access

The endline study further revealed ambiguity among respondents, both adolescents and adults, regarding specific digital mental health resources they have engaged with. Although a few respondents – mainly key informants but also two adolescents from Morogoro (one male and one female) – could describe mental health-related content they encountered, their descriptions lacked specifics. Typical sources of material on mental health included YouTube, television, and various websites.

> In addition to your intervention, the Ubongo Kids [television, TV] programme is highly beneficial as it contributes to reducing the prevalence of mental health issues among adolescents and improves access to crucial information. The [TV] programme also serves as a source of solace for children who have experienced violations at home, providing them with a means to relax and unwind through engaging cartoons.
> (KII, teacher, Mwanza)

8.1.3   Advantages of technology use

A significant proportion of in-depth interviewees (36 in total, 16 from Mwanza and 20 from Morogoro, comprising 16 boys and 20 girls) as well as some adult respondents identified advantages of digital technology for adolescent mental health. The benefits most frequently cited were educational and awareness-raising capabilities,

often associated with the ability to gain knowledge and solutions to mental health problems through viewing films and other internet resources.

> Technology simplifies access to knowledge, making it easily accessible if utilised effectively. Therefore, incorporating technology into the intervention would be advantageous, as it is highly appealing to young people and enables us to disseminate a wealth of information simultaneously, unlike traditional face-to-face methods.
> (KII, teacher, Morogoro)

Additionally, respondents pointed to **the capacity of digital technology to reach a larger adolescent audience** than conventional face-to-face methods.

> Because many individuals can be reached in a short time through platforms like YouTube, it is more effective than conducting direct education in each village. The use of technology allows for quick dissemination of messages, ensuring that a substantial audience can access the information and benefit from it.
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

Several adolescent respondents noted **the potential for technology to serve as a distraction from mental distress.** They cited examples such as downloading and playing a game to divert their thoughts, and watching comedies and dramas to alleviate stress through laughter. These responses highlight the multifaceted role of digital technology, not only as a medium for

mental health education and support but also as a potential tool for stress management.

8.1.4 Barriers to technology access and use

The majority of participants cited **access to digital technology as a challenge**. One key informant noted that although many people have access to a phone, access to computers remains limited. Thus, using phones, particularly smartphones, to deliver mental health information could be a beneficial strategy, although there are issues around the **affordability of smartphones for many adolescents**. One focus group participant suggested that basic phones could be more accessible to adolescents.

> R2: Using smartphones may not be feasible since most adolescents do not own such devices. But non-smartphones could be considered as an alternative option.
> (FGD with mothers living in Morogoro)

> R1: The use of technology is accessible only for those who are using smartphones.
> (FGD with adolescent boys aged 16–17 living in Morogoro)

A handful of respondents highlighted a lack of internet access, such as not having an 'internet bundle' or living in areas without electricity.

> Online access to educational materials depends on the availability of internet data ... However, this poses a challenge for many individuals, as there are instances when they lack an active internet bundle.
> (KII, Ward Education Officer, Mwanza)

Furthermore, gaps in digital literacy were identified, with some adolescents saying that they or their peers were unfamiliar with how to use computers.

> Some of them [classmates] don't know how to use it, personally I wish to teach all my peers on how to use computers.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

Language barriers also emerged as a potential obstacle. One respondent pointed out that language proficiency can affect access to information, particularly if it is in a language unknown to the user.

> R7: If information is solely written in English and I don't understand the language, it will put me at a disadvantage as I won't be able to access the services or benefit from the information provided.
> (FGD with adolescent boys and girls aged 15–17, who are also student government leaders at their secondary school in Morogoro)

Another challenge that adolescents mentioned was the risk of accessing inappropriate content, specifically pornography, through social media platforms. This also links to the theme, found also in the baseline study, of parents not giving their children permission to own or use phones because of fears of inappropriate usage.

> **A good number of adolescents own phones and spend their time browsing the internet, often engaging with unsuitable content, in particular watching pornography.**
> (IDI with 17-year-old boy in secondary school form 4 who co-created, led and participated in project activities; lives in Morogoro)

> **…only a small number of youths utilise social media platforms for educational purposes. The majority tend to use social media platforms like TikTok primarily for entertainment purposes, exposing themselves to content that may not be suitable for their age.**
> (IDI with 18-year-old young woman in secondary school form 4 who participated in project activities; lives in Morogoro)

Changes in technology over recent decades have not only transformed social dynamics but also influenced the development of intimate relationships, particularly among younger people, who now have unprecedented opportunities to connect, engage and form relationships with others, transcending geographical boundaries and traditional limitations. These opportunities can bring both positive and negative outcomes.

> **Technology serves as a catalyst for engaging in unhealthy relationships at a young age. The ease of communication facilitated by technology has contributed to their involvement in sexual relationships at an early stage, as it allows for closer interaction between individuals.**
> (KII, administrator and chaplain, Mwanza)

A focus group discussion with fathers from Morogoro also raised concerns that mental health messages accessed via the internet may be ignored as individuals, especially young people, may be more interested in entertainment content on their devices.

> **R6: …it is possible that our community lacks awareness regarding the availability of mental health information through phones or TVs. Alternatively, they might be aware but choose to ignore it due to a greater focus on using their phones for entertainment purposes rather than seeking out mental health content.**
> (FGD with fathers living in Morogoro)

Many respondents cited other negative effects of technology, including the encouragement of bad behaviours such as insulting or speaking ill of others, engaging in gambling, spreading misinformation, fostering unhealthy relationships, and imitating negative behaviours such as drug use. Two adult respondents even linked the use of technology to sexual abuse in schools.

> **R3: One of the challenges is the tendency for some individuals to copy and manipulate information in a negative manner. They distort facts and spread false narratives that instil fear in people's minds.**
> (FGD with adolescent boys and girls aged 12–14, who are also student government leaders at their primary school in Morogoro)

> R8: Mental health problems are prevalent even in primary schools. For example, there has been a case where a child in fifth grade was found engaging in sexual abuse with a child in second grade. If you investigate it further, you will find out that the child's exposure to such behaviour originated from his mother's phone or local video kiosk.
> (FGD with mothers living in Mwanza)

Several respondents, mostly adults, expressed concerns that technology may worsen adolescents' mental health, highlighting potential social isolation and increased stress levels among people already dealing with mental health issues. They noted that the widespread use of digital devices can disrupt familial interactions and exacerbate feelings of isolation, thereby having a negative impact on mental health.

> R1: In my opinion, the use of phones has contributed to mental health problems as it isolates individuals from their regular family life and promotes connections with people they don't physically interact with. This phenomenon is already observed in families where each member, including the father, mother and children, possesses a phone. It becomes challenging for them to gather around the table and engage in meaningful conversations for even a few minutes, as everyone is preoccupied with their phones.
> (FGD with fathers living in Morogoro)

> R4: However, unintended exposure to negative content can contribute to further stress, especially for children under 18.
> (FGD with adolescent boys and girls aged 15–17, who are also student government leaders at their secondary school in Morogoro)

8.1.5 Managing technology access

Several adult respondents acknowledged the inevitability of young people's engagement with technology in the modern world. Recognising that young people cannot be entirely prevented from using technology (including TVs, phones or computers), respondents emphasised the importance of providing guidance to young people on how to safely navigate through digital spaces and to use technology effectively for its educational benefits. This viewpoint underscores the need to empower young people with the skills and knowledge to engage with technology safely, productively and responsibly, rather than attempting to restrict their access.

> R6: ...it is impossible to separate the use of technology from the current generation. Instead, our focus should be on guiding them towards safely harnessing the educational benefits technology offers. We cannot divert them from engaging with devices such as televisions, phones or computers altogether.
> (FGD with fathers living in Morogoro)

Some adult participants expressed concern over the unrestricted use of technology by young people, with some advocating for restrictions on phone applications to ensure the appropriateness of content. They also emphasised the importance of supervision in educational settings, where

students might be tempted to use digital resources for non-academic purposes.

> Setting appropriate restrictions and carefully curating content is crucial when children use technology. Allowing unrestricted access to apps and internet browsing can lead to unintended consequences. Instead, phones should be configured to provide age-appropriate and constructive content. By following the example of educational institutions that adhere to cultural standards in Tanzania, we can create a controlled environment that ensures children's safety and productive engagement with technology.
> (KII, Ward Education Officer, Mwanza)

> The internet poses challenges as it exposes children to potentially harmful content, despite the possibility of finding helpful information. Giving unrestricted access to phones or allowing unsupervised browsing can lead to negative effects. Similarly, television and YouTube may contain inappropriate content that can negatively influence children. However, technology can still be valuable in an educational setting where access is controlled and limited. In the community, the misuse of technology has become problematic.
> (KII, Ward Education Officer, Morogoro)

8.1.6   Balancing technology and in-person interventions: preferences and considerations

Despite acknowledging the positive role that technology can play, most adult participants demonstrated a stronger preference for in-person

mental health interventions. They expressed concerns that technology-based interventions could easily be overlooked or misunderstood, and distractions (in the form of other digital content) might dilute their impact. In contrast, they noted that face-to-face interactions allow for immediate clarification of doubts and questions, ensuring a better understanding of the information shared. Furthermore, considering the limited access to technology resources in their communities, the participants believed that in-person interventions would be more accessible and equitable.

> R10: I also agree that face-to-face interactions are superior because online platforms may not guarantee a child's understanding of the information they come across. Although a child can search for information online, there is no assurance that they will grasp the content. But when they have direct contact with a specialist, they can ask questions and receive detailed explanations, enhancing their understanding.
> (FGD with fathers living in Mwanza)

> Face-to-face interaction is the most effective method for delivering mental health education. TV sessions often get overlooked or ignored, whereas direct conversations command attention and engagement. When education is provided in person, individuals are compelled to listen, even if they have no initial interest. On the other hand, if the same education is broadcast on TV, individuals can easily switch off the TV and disengage.
> (KII, patron of Fema club, Mwanza)

Contrary to the views expressed by adult respondents, many adolescents were more positively inclined towards digital mental health

interventions. They highlighted the potential of digital platforms to deliver mental health resources in an engaging and non-judgemental manner, overcoming potential embarrassment or reluctance to discuss personal issues in face-to-face settings. Adolescents also found technology-based interventions more appealing as they offered anonymity and the freedom to explore resources at one's own pace, which could be particularly beneficial for those who might struggle with direct interpersonal communication about their mental health concerns.

An approximately equal number of adolescents and adults seemed to agree on the benefits of a mixed approach in mental health interventions, integrating digital and in-person methods. They suggested this strategy could maximise accessibility, catering to the diverse needs and circumstances of different individuals. Digital interventions could provide support for those living remotely or who are well-educated and technologically savvy. Simultaneously, face-to-face interactions could be essential for those lacking reading and writing skills or lacking digital literacy and internet access. In essence, this dual strategy could serve a wider population, accommodating various degrees of education, digital literacy and geographical location.

> R5: To me, the use of technology is the preferred method because it provides a sense of privacy and anonymity. Some individuals may feel hesitant or shy to discuss their personal issues face-to-face with others. But by accessing information and resources online, people can read and help themselves. In face-to-face interactions, there may be concerns about sharing personal problems with someone unfamiliar.
> (FGD with adolescent boys and girls aged 15–17, who are also student government leaders at their secondary school in Morogoro)

> The combination of both approaches is crucial. This means individuals should have the option to seek help in person from a mental health provider, while also utilising technology when face-to-face access is limited. For instance, technology can be used as an alternative for those who are geographically distant from mental health services. However, if someone is near a mental health provider, meeting in person is preferred.
> (KII, clinical psychiatrist, Mwanza)

> R3: Adolescents find it challenging to learn through traditional face-to-face methods, as their concentration tends to be low. But if educational content is designed in an engaging and entertaining format, more adolescents are likely to be interested and motivated to watch and learn.
> (FGD with adolescent boys and girls aged 16–17, who are also student government leaders at their secondary school in Mwanza)

> R1: I believe it is important to utilise all approaches because the technology approach is more suitable for educated individuals. But it is crucial to consider that not everyone is literate or proficient in reading and writing. Accessing and understanding written articles can be challenging for those who are not literate. In such cases, direct access to mental health specialists becomes essential for individuals to receive the necessary help and support.
> (FGD with adolescent boys aged 16–17 living in Morogoro)

8.2 Effects of the intervention on technology usage

At baseline, perhaps the most striking finding was participants' limited use of technology; most adolescents (63%) had not used a computer (or laptop), tablet or the internet in the previous year. Of those who had, most used it less than once a month. Use of a mobile phone with internet access (smartphone) was relatively more common: 53% of respondents had had some access in the previous year, with almost a fifth (19%) reporting daily usage. Socioeconomic status (SES) was associated with statistically significant differences in computer usage and internet access, with far higher levels of access among participants from the higher SES groups, while boys were more likely to have used the internet than girls. Parents and caregivers also generally approved of adolescents' use of computers as they could increase their children's employment prospects.

Although having computers in the school was a prerequisite for selection for the intervention (and although 10 computers in the SUA secondary school in Morogoro had to be replaced), adolescents had limited access – in part due to computers not being part of the regular curriculum and computer labs doubling as teacher's offices, making them off-limits for adolescents. Our endline analysis points to sizeable and statistically significant increases in computer or laptop access for intervention participants – unsurprisingly, given the digital component of the intervention (see Chapter 3). The share of intervention participants who reported 'never' having had access to a computer or laptop in the previous year dropped by 31 percentage points while the share with weekly access was up by 19 percentage points and the share with daily access up by 6 points (Figure 11).

Figure 11 Access to a computer or laptop: changes among population groups between baseline and endline, treatment and control groups

Through regression analysis, we sought to determine the impact of the intervention on computer usage. Again controlling for differences associated with the socio-demographic variables (age, gender, region, SES, hunger status), we found that:

- at endline, the frequency of computer usage was higher compared to the baseline (the log odds of being in a higher category of computer usage increased by 0.7058, p=0.000);
- at baseline, there is no statistically significant difference in the log odds of being in a higher category of computer usage between the control and treatment groups (p=0.823);
- at endline, the log odds of being in a higher category of computer usage are higher for the treatment group than for the control group (0.8076, p=0.026), suggesting the intervention had an effect on increasing the frequency of usage over time.

In the qualitative research too, many adolescent participants – from both sites, and boys and girls alike – highlighted **an increase in their access to computers** since the intervention began, although none could quantify this increased frequency.

> Previously, not everyone had the opportunity to access the computer room at school. But with the introduction of this programme, students now have the option to request access. They can approach the teacher and ask for a key to the computer room, expressing their desire to learn. Upon receiving the key, they can enter the room and engage in computer-based learning.
> (IDI with 16-year-old girl in secondary school form 4 who led and participated in project activities; lives in Morogoro)

Numerous adolescents (boys and girls from both sites) also mentioned that the intervention had significantly improved their computer skills. Thus, the intervention served a dual role of providing mental health support and promoting digital literacy among the participants.

> Prior to joining this programme, I did not have a computer at home, which limited my computer literacy skills. But since becoming a part of this programme, I have gained knowledge on basic computer operations such as turning it on and conducting searches.
> (IDI with 17-year-old girl in secondary school form 4 who co-created and participated in project activities; lives in Mwanza)

> I acquired computer skills through this programme, as prior to joining, I had no knowledge of how to operate a computer. Thanks to the guidance and instruction provided by the teachers, I have now learnt how to effectively use a computer.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

A handful of adolescents, both girls and boys but mostly from Mwanza, stated that their phone skills had also improved due to the intervention, suggesting that increased computer access may have transferred to other digital platforms. These adolescents reported learning fundamental phone operations like making calls and sending text messages. At baseline, the qualitative data found that adolescents' use of social media was generally low. At endline, one participant noted an increase in their knowledge of social media platforms,

attributing this growth to the intervention. The intervention, therefore, enhanced not only their mental health support but also their proficiency in using phones and understanding social media.

> In the past, I lacked the knowledge of making phone calls and would often struggle to answer when my mother called. But through the programme, I have learnt how to confidently make and receive phone calls.
> (IDI with 15-year-old girl in primary school class 7 who co-created and participated in project activities; lives in Mwanza)

> Prior to this mental health programme, I was unaware of certain social networks like Facebook. As a result of participating in the programme, my technological skills and knowledge have significantly improved, enabling me to effectively navigate and use various platforms.
> (IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

Although many adolescents reported an increase in their computer and phone skills due to the intervention, it is important to acknowledge contrasting experiences of students who were not initially included in the intervention. These students expressed a keen interest in joining the mental health club at their respective schools and were granted permission to exclusively participate in the non-digital activities. One such adolescent stated that their computer skills had not improved, as they did not have access to a computer.

> I currently lack the knowledge and skills to use a computer as I did not participate in the digital component of the mental health programme.
> (IDI with 18-year-old young woman in secondary school form 4 who took part in non-digital project activities only; lives in Mwanza)

The endline research suggests that a handful of adolescents among the younger age groups are still struggling with independent use of digital technology and may need more guided instruction to effectively engage with digital mental health interventions. Furthermore, the lack of consistent access to technology at home presents another barrier.

> R6: We face difficulties in searching for mental health-related information independently and struggle to use digital devices without assistance.
> (FGD with adolescent boys aged 11–13 living in Mwanza)

> R2: The impact of the intervention is limited as participants primarily had access to technology only at school. Once they return home, they lack personal access to phones, except for rare cases where they may borrow their father's phone. But even in such cases, managing and utilising the technology becomes challenging. The main challenge lies in the lack of access to technology at home, which is different from their access while at school.
> (FGD with fathers living in Morogoro)

Our quantitative data shows that access to the internet appears to have increased between baseline and endline – in terms of an 11-percentage point reduction of the share of the population in both treatment and control groups who report having 'never' used the internet in the previous year (Figure 12). However, there is no marked increase in monthly or more frequent use for the treatment group. This may not be surprising given that the digital component of the intervention did not require any internet access. Indeed, increases appear more marked for the control group, who report small increases in more regular usage.

At baseline, adolescent boys and girls both mentioned that digital technologies can enable them to learn about different health topics, including mental health. Some mentioned that they use digital technologies when they feel sad or stressed. Others perceived the internet as a more 'open' and 'honest' space to get information and talk about mental health (compared with face-to-face interactions) because it offered privacy, allowing them to feel more 'confident' to talk about problems. Most respondents (adolescents and adults) suggested that a combined approach – using digital and face-to-face methods – would be most effective in delivering mental health support services.

At endline, we did indeed find an increase in use of the internet to access information about mental health among intervention participants. The share of those having never used the internet to access mental health information dropped 12 percentage points for the treatment group and rose by acommensurate amount among participants in the control group (Figure 13). The share of

Figure 12 Access to the internet: changes among population groups between baseline and endline, treatment and control groups
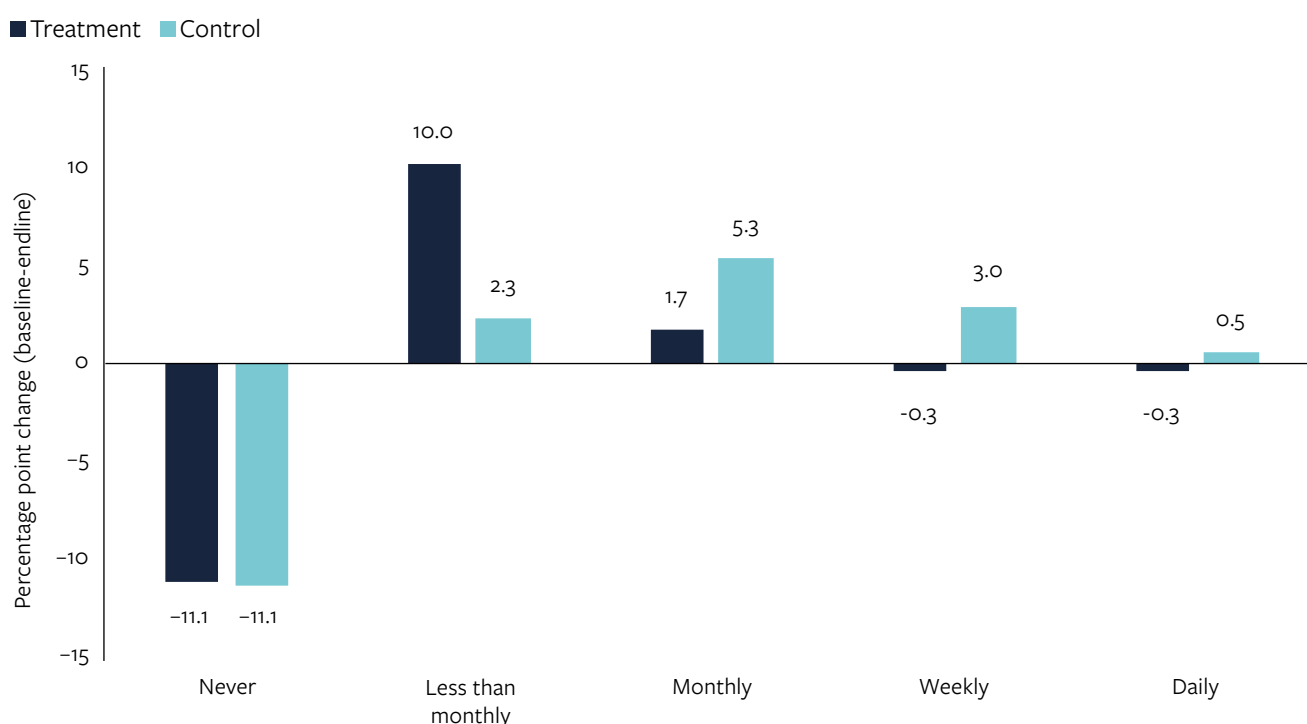
respondents in the treatment group using the internet 'less than monthly' and 'once a week or more' increased markedly. Interestingly, there is a drop among intervention participants in the share of the population who reported using the internet to access mental health information 'almost every day'. This might reflect the coincidence of our baseline with the early stages of the Covid-19 pandemic, which had well-documented effects on mental health; or it may be illustrative of a more limited understanding at baseline of what constitutes mental health information.

Participants in the qualitative research, however, did not have strong views on **the impact of the programme on the type of material accessed.** Some adolescent respondents stated that they 'read about mental health', but it is not clear whether this was limited to the context of the intervention or extended to their personal time. Several respondents commented vaguely about being able to 'search something on the internet' (but the type of material was unclear), while several respondents (adolescents and adults) reported that some adolescents have played more digital games since the intervention.

> Thanks to this programme, I have learnt how to use a modem to search for information on the internet, something I was not aware of before.
> (IDI with 17-year-old boy in secondary school form 4 who participated in project activities; lives in Morogoro)

Figure 13 Use of internet to access mental health information: changes among population groups between baseline and endline, treatment and control groups
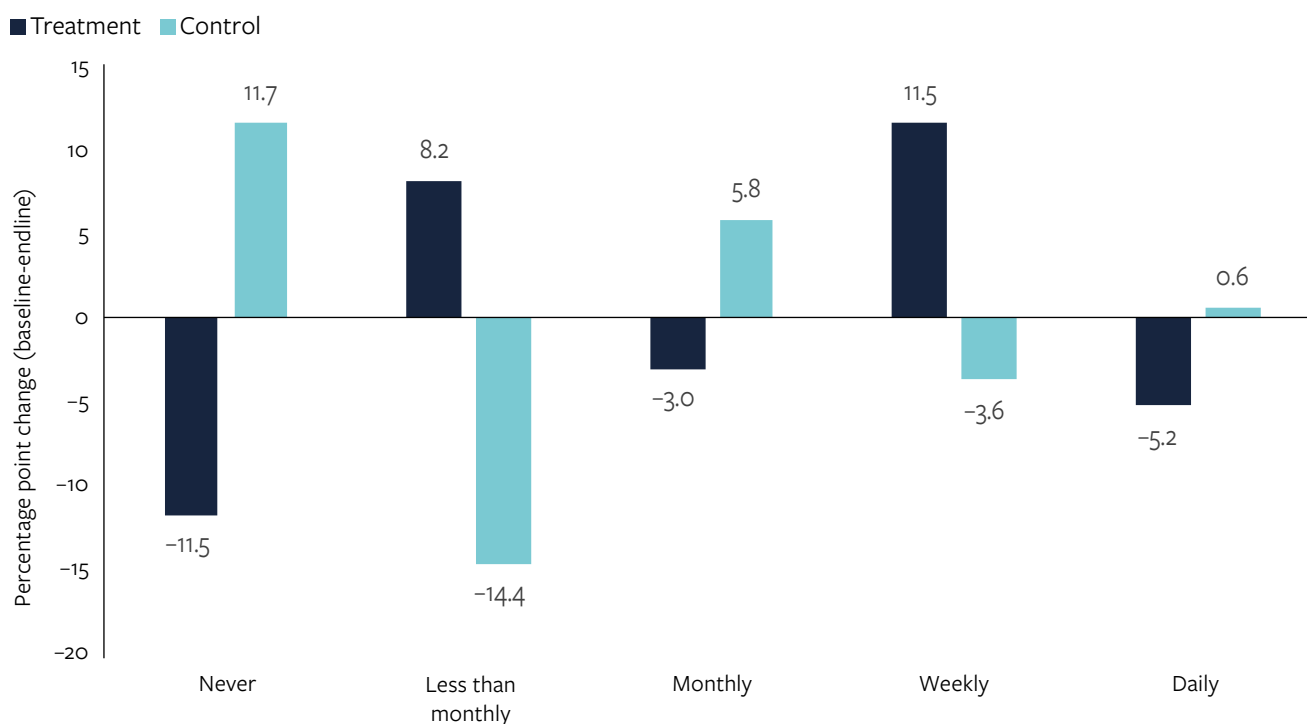
I: What kind of material do you access on Facebook?

R: On Facebook I can access mental health material and read about other stories.

I: Have you ever read any mental health-related material through Facebook?

R: Yes.

I: Do you remember from which page have you read about mental health?

R: I cannot remember the page.

(IDI with 14-year-old boy in primary school class 7 who participated in project activities; lives in Morogoro)

However, one respondent noted that some students were distracted by other content on the computer during the digital sessions. He advised that 'they need to be supervised to make sure that they use technology in better ways'.

Due to the allure of technology for young people, they may deviate from its intended use. For instance, during our digital sessions, we encountered a challenge where certain students were engrossed in watching unrelated content on the computer. Movies stored on the computers also served as a distraction, diverting their attention from the intended learning objectives.
(KII, teacher, Morogoro)

9 Conclusions and recommendations emerging from the study

9.1 Summary of findings

Our analysis allows us to draw various conclusions about the impact of the intervention among adolescent participants, their caregivers, families, teachers and the wider community. The first indications of positive impact arose during regular check-ins with study participants and other stakeholders (Chapter 3). Perceptions of the intervention were generally positive, with the majority reporting that the intervention was 'well presented and taught'. Participants concurred that the intervention would be popular if it were to run again and raised the importance of involving the wider community to raise awareness more broadly around mental health.

Feedback from teachers indicated that this activity was effective in engaging students and teachers who were not directly part of the project implementation, and indeed, the headteachers in all four schools demonstrated genuine interest in the activities and in learning about endline results. Other stakeholders such as local authorities and local medical institutions showed interest in the intervention, participated in it, and even expressed plans to continue investing in mental health resources. Apart from government officials, teachers in neighbouring schools in Mwanza and Morogoro expressed an interest in running similar mental health interventions in their schools.

Using data collected at baseline and endline, we explored changes in mental health knowledge and awareness (Chapter 4). Our endline data suggests some marked and statistically significant improvements in all these measures throughout the student population. Overall, the treatment group experienced gains of 16% in emotional literacy, 9% in knowledge of good mental health and 17% in knowledge of how to seek mental health information, compared with gains of 6%–7% for the control group. Increases in emotional literacy and knowledge of how to seek information on mental health were higher for treatment adolescents even after controlling for differences in socio-demographic characteristics (age, gender, region, SES, hunger status) and differences among treatment and control group participants at baseline, providing evidence that the intervention itself brought about these improvements.

The qualitative data affirmed that involvement in the intervention and subsequent gains in confidence fostered the acquisition of knowledge about mental health. This newfound understanding extended beyond intervention participants, as they shared their knowledge (and programming materials) with siblings, parents, friends, teachers, and others within their family, school and community. Indeed, the evidence points to: (1) the broad diffusion of gains in mental health within schools and the broader community – acknowledged by headteachers (including mentions of mental health having been raised for the first time at PTA meetings), teachers and parents, as well as adolescents themselves; and (2) adolescents demonstrating the agency to shape conversations with parents, teachers, and others in their school and community. Adolescent participants were encouraged to share their learning at home and within the school; nevertheless, this organic transmission

of mental health knowledge well beyond the original intervention target group adds credence to the argument that investments in school-based programmes can spur multi-level change and reinforce support for mental health.

There is evidence of some improvement in attitudes toward mental health issues and a reduction in stigma, though this remains a significant problem. Furthermore, most adolescents reported positive effects of the intervention on their teachers, particularly those who actively facilitated activities; adolescents' reports suggested that teachers became more supportive, forged closer relationships with their students, and offered them advice. Analysis of data for the whole student population points to gains in our scale measuring Attitudes Toward Seeking Professional Psychological Help between baseline and endline for the treatment group (an 8% increase) and negligible change for the control group; and indeed, our regression model affirmed the positive effect of the intervention, once controlling for differences in socio-demographic characteristics and in the attitudes of the control and treatment groups at baseline.

Furthermore, in the qualitative data, at endline, adolescent and adult respondents both displayed a notable understanding of the various formal services and programmes available for managing psychosocial stress. Moreover, we propose that a shift or a broadening of health-seeking behaviour took place, from specialists to non-specialists, in which non-specialists were made more aware of mental health and how to address mental health issues, and adolescents became more proactive in seeking such help.

We next sought to understand how the intervention affected the two core quantitative measures of mental health and psychosocial

well-being in this study – the SDQ and WHO-5 measures (Chapter 5). Based on the survey data, we constructed two SDQ subscales measuring mental health difficulties and prosocial behaviours respectively. Whereas adolescents in the treatment group registered a 9.4% rise in prosocial behaviours (p=0.001) and an equal (but not statistically significant) decline in mental health difficulties, the control group experienced smaller and non-statistically significant changes for both subscales. On the WHO-5 Well-Being Index, our results point to statistically significant increases over time, of 9.4% for the treatment group and 5.6% for the control group.

After introducing the standard controls, our regression analysis reported statistically significant gains in the SDQ prosocial behaviours subscale among treatment participants, whereas improvements in the SDQ mental health difficulties subscale and WHO-5 Well-Being Index were no longer statistically significant. The relationship between sharp gains in mental health awareness (discussed in Chapter 4) and only modest changes in the mental health outcomes appears to merit further exploration.

At the same time, the qualitative data highlights many important effects of the intervention on the drivers of mental health and protective factors for mental health and psychosocial well-being. Adolescents and teachers reported improvements in school performance and a reduction in violence and bullying. Adolescents also reported that the intervention led them to make changes regarding the qualities they disliked about themselves. They also learnt more about what made them happy, discovering that they derived enjoyment from being more sociable, from developing friendships with programme participants, from learning about how to solve conflicts with peers, seeing their peers succeed, and the discovery of new

activities such as reading or exercise. Some began to spend more time on new activities (playing sports, spending time with friends after school) after learning that leisure time is important to cope with stress. Adolescents also observed changes in their classmates who were not part of the intervention, citing greater collaboration in the classroom, more interest in sharing problems with teachers, less use of stigmatising language (by teachers and classmates), and more awareness about mental health. There were reports of some parents becoming more aware of mental health (including their own) and approaching local clinics with their concerns.

At both baseline and endline, the use of formal mental health services was low (Chapter 6). Reasons include personal beliefs, stigma, poverty, geographical location, the limited number of dedicated mental health facilities coupled with scarce human resources, and a lack of awareness among adolescents and adults alike. Teachers and service providers both highlighted structural issues impacting mental health services, including inadequate government funding, outdated guidelines, acute staff shortages, and a lack of priority given to mental health units. Moreover, they underscored the need for supplementary resources, including brochures and educational materials, the use of mass media platforms such as radio, and the integration of mental health topics into school curricula, facilitated by teachers with expertise in psychology.

There is more evidence of the effects of the intervention on coping mechanisms (Chapter 7). Using pooled data from the baseline and endline surveys, we produced indicators of three types of coping strategies: active, avoidant, and expressive/emotional. Our analysis demonstrates a marked rise in the use of active coping among adolescents in the treatment group only (of 15 percentage points,

$p=0.000$), and points to no change in the subscales measuring the use of avoidant and expressive coping strategies. Our regression model affirms that the intervention had a positive impact, showing that after controlling for socio-demographic characteristics and differences in coping among the treatment and control groups, the treatment group registered a statistically significant improvement in active coping, over and above the main effects of being in the endline or treatment group.

The qualitative research provided more detail on the types of coping strategies adolescents use and the impacts of the intervention. Positive coping strategies involved some solitary activities such as listening to music, watching movies, reading, and carrying out school-related tasks. Other strategies involved interacting with others (e.g. playing outdoor games, confiding in trustworthy individuals such as family, friends or neighbours, and seeking solace through prayer at church). Adolescents also mentioned digital games and practising breathing exercises (which they learnt during the intervention). Negative coping strategies included self-isolation and sleep as avoidance behaviours and, among a minority, bullying and a reluctance to share problems with others. While the baseline study recorded similar findings, the endline qualitative study appears to show a reduction in these unhealthy forms of coping.

The intervention also seems to have positively affected adolescent relationships with peers and family members. According to several adult respondents, the implementation of targeted interventions in schools has led to notable improvements in students' support systems. As noted earlier, this provides further evidence of changes in adolescents' propensity to seek help from non-specialists – another area we propose to investigate further in future work.

Finally, we explored the role of technology in addressing mental health issues and the impact of the digital component of the intervention (Chapter 8). Our analysis details the types of digital content that students access, how and where they do so, and the perceived benefits and challenges associated with technology use, from the perspective of adolescents and their parents. Our survey data pointed to marked statistically significant increases in access to computers for intervention participants, alongside some increases in internet usage and in the share of adolescents who reported having used the internet to access mental health information. For example, the share of intervention participants who reported 'never' having had access to a computer or laptop in the previous year dropped by 31 percentage points while the share with weekly access was up by 19 percentage points and the share with daily access up by 6 points. This analysis suggests that digital approaches may be important in future mental health-focused interventions, both for their role in motivating students to participate and for the potential they offer to extend access to confidential advice. However, the discussion also highlights the need to provide guidance to adolescents in their utilisation of technology, underlining the significance of a blended (in-person and digital) approach in intervention design. The analysis also uncovered some trepidation among parents about their children's increased digital access, notably concerns over the types of materials they might view on the internet.

9.2 Participants' suggestions for improving the intervention, mental health awareness and service access

Over the course of the endline research, participants in the qualitative study made various suggestions as to how to improve the intervention

as well as broader recommendations for improving mental health awareness and service access. The project team also made suggestions based on observations throughout the project and the findings from data collection.

Intervention logistics. Several respondents suggested increasing the number and/or length of sessions (whereas just one felt the school timetable was already tight and the number of sessions could be reduced). Some respondents favoured holding sessions at weekends, to alleviate time constraints. Other suggestions included increasing the number of facilitators to at least two per school, so if one was not around, the other could take over; and providing funds to help participants with transport, especially those from poorer households, when sessions took place out of class hours or on weekends. Finally, it was recommended that facilitators adhere to the planned schedule to maximise linkages between the digital and non-digital content, and that they hold regular assessments and/or tests to review participant progress (beyond the issuance of certificates).

Improving the digital component. Various suggestions emerged from participants and the project team:

- Make more computers available. Having a minimum of 10 computers on site was a prerequisite for selection for the intervention, but this minimum number meant that the group of approximately 30 students who participated in each club had to be broken into 3 groups of 10, and to use the computers in rotation. As a result, it took 3 weeks to complete each digital module. If more computers were available, the preference would be for all 30 students to take part in the digital module at the same time, which would also allow more effective linkages to the non-digital sessions.

- Increase access to and safe engagement with digital interventions for adolescent mental health. Two key themes emerged: the need to identify and curate adolescent-friendly digital content; and the need to ensure its appropriate usage through a combination of restrictions on inappropriate content and effective teacher supervision in educational settings.
- Take steps prior to the intervention to inform parents about its digital access and programming content, and to address any concerns related to what materials students might access via the internet. This could also include messaging about the potentially positive effects of technology to decrease isolation (via prosocial groups).
- Label the computers with the club name, so they are not used for other activities.
- Have videos in both English and Swahili (currently, they are in English only).
- Ensure that the programmes are working correctly on the computers (through regular check-ins and training of supervisors to monitor this).

A key point to stress is the importance of access to technology as an entry point into addressing mental health. This was a huge draw for adolescents and some of their parents, who felt that it was important for their children to acquire digital skills. Increasing the supply of computers could also help overcome parent reservations linked to access (worries about computers not being available). Moreover, the use of computers (and provision of computer access as part of the intervention, where feasible) could help secure government buy-in for the broader intervention (given the tangible benefit to students that computers and digital skills represent; these may be easier to perceive than the psychological benefits, which may be both less visible and harder to measure).

Improving the sports component. Suggestions for this included: the provision of sports kit beyond football and netball, as it not only provides an incentive, but also has a side benefit of raising awareness about the programme; extending the variety of sports on offer (which itself might have equipment needs – e.g. jump ropes, basketballs); and holding sports competitions between schools that are implementing the intervention.

Specific aspects of the intervention. First, we propose to explore how the programme can be framed in schools prior to the intervention to reduce the stigma associated with participation (as reported in chapters 3 and 4, some classmates and teachers stigmatised participants as 'mentally unstable' or 'crazy'). Second, where possible, we propose to have trained professionals (e.g. clinical psychiatrists, psychiatric nurses, doctors, pharmacists) facilitate sessions, given their expertise in the subject matter. Third, we propose to explore incorporating a gender equity focus within the intervention. For example, in our data collection, girls in particular reported having no leisure time and/or constraints due to their household work and/or caring responsibilities when not in school. Moreover, our findings suggested that adolescent boys were more likely than girls to seek out mental health support. An explicit focus on gender could help to generate awareness of the gender-related inequalities that affect mental health and could begin to shift stigmatising perceptions about mental ill health.

Extend participation and duration. Respondents proposed: involving parents and other teachers in the intervention schools more proactively in programming from the start of the intervention, including through providing seminars/awareness-raising sessions; raising the awareness of community leaders about the intervention and the need to address adolescent mental health

more generally, including village leaders, local government leaders and ward executive leaders – so that they in turn can raise awareness in their communities; and finding resources (largely financial) to sustain the intervention beyond the project cycle.

Research and evaluation. The research has flagged numerous areas for future research, some of which we highlight here. A key issue concerns the relationship between mental health literacy and mental health outcomes, as measured here by the SDQ or WHO-5 Well-Being Index. In future work, we propose to use diverse measures of mental health literacy and to investigate how core components – knowledge, attitudes, a willingness to seek help – may affect behaviours, and over what time period. These findings may also allow refining the intervention content to strengthen the extent to which gains in mental health awareness and knowledge translate into core mental health outcomes.

A second issue concerns material and non-material barriers to accessing help – notably further investigation of our finding that fewer adolescent girls than boys sought and utilised mental health services. In particular, we are interested to explore perceptions of mental ill health among different population groups; this stems from the project team's observation (reported in Chapter 6) that girls often face the challenges of not being taken seriously when they express their emotions and of being labelled as 'hysterical', and that this may inhibit them from seeking care for themselves or being referred for care by their parents or other relatives. This finding suggests that gender norms may play an important role in shaping perceptions of what constitutes mental ill health, so could be an important area to address in promoting equitable access to mental health services.

Finally, we propose to investigate more rigorously the different forms of help-seeking, to test our hypothesis that the project involved a shift or a broadening of help-seeking behaviour from specialists to non-specialists. To do this, we would investigate in greater depth whether participants are more willing, at the close of the intervention, to seek help from trusted adults (for example, non-professionals such as community elders, church leaders or teachers).

Scale-up: extending the intervention to other schools. We propose to explore possibilities for extending the intervention to other schools, with a focus on diverse types of schools and harder-to-reach communities, and other adolescent populations such as out-of-school children or those who leave school after completing primary education. Targeted outreach to religious leaders and traditional healers will be an important means of reaching these children and young people.

Scale-up beyond schools to the community more generally, thereby increasing the number of beneficiaries. Suggestions for further scale-up included:

- having joint school adolescent events, where different schools come together, including those that were part of the intervention and those that were not;
- involving more mass media (e.g. TV shows, including advertisements);
- targeting groups with particular needs or vulnerabilities (e.g. drug users);
- using festivals and school-related competitions to promote the intervention – for example, events like the annual inter-primary school games in Tanzania (known as UMITASHUMTA in Swahili, which translates to Umoja wa Michezo Shule za Msingi Tanzania) and the inter-secondary school games (UMISETA, Umoja wa

Michezo ya Sekondari Tanzania). These events are organised by the President's Office–Regional Administration and Local Government and encompass a diverse range of enjoyable and educational activities for students;

- setting up an office or central place where people can access support, so that people 'off the street' can come in and learn about mental health.

More broadly, we propose to maximise the intervention's impact by tapping into adolescents' ability to share their learning with family and community members, drawing on the sharing of results that occurred organically in the first phase of the project; and to experiment with different means of evaluating this multi-level impact.

Broader recommendations relate to awareness-raising about mental health and improved service provision. There is a need to increase the availability of mental health services, especially in rural areas, both at district and village levels, and for counselling services that students can access. Specific recommendations include: the expansion of youth-run groups or clubs focusing on mental health; increasing the supply of trained mental health professionals; increasing the number of experts on addiction issues; greater integration of mental health training for health professionals working in physical health; dedicated centres focusing on providing support to adolescents; and bolstering accessibility (e.g. making sure that mental health information is available in different languages), particularly for children and young people with disabilities such as visual or hearing impairments.

Increase awareness of mental health (especially targeting youth) and to reduce beliefs that individuals with mental health problems have been 'bewitched'. Respondents proposed a variety of outreach materials and activities,

including posters and flyers that could easily be disseminated within the community. Suggested activities ranged from community awareness campaigns to concerts, debates, plays, poems and a TV series. Respondents also proposed outreach in additional locations such as clinics for expectant or new mothers, and at places of work. It was also suggested to disseminate student outputs to their communities – for example, the poems that intervention participants wrote about mental health. Finally, there is a clear need for teachers to receive better training on mental health among children and adolescents so that they can provide more effective support to students.

Increase and diversify the range of people raising awareness on mental health and providing support – for example, through targeted outreach to involve clinicians, traditional healers, religious leaders and parents.

Make mental health sessions an integral component of the curriculum. There are two key proposals here: (1) provide training for teachers and encourage schools to hire teachers with expertise in psychology and/or mental health education; and (2) engage with the Ministry of Health and Ministry of Education to advocate for the inclusion of mental health in national curricula.

9.3 Sustaining the impacts of the intervention

Key informants also made suggestions for continuing the intervention, which highlighted institutional and structural windows of opportunity.

A handful of key informants reported **positive views from school authorities and government agencies involved in implementing the intervention and of mental health more broadly**. For instance, according to one key

informant, school and government authorities have realised the 'importance of teaching or spreading mental health awareness among the community'. Several key informants also highlighted the demand for such a project given 'the large number of adolescents who are facing mental health challenges … from schools and university institutions', with 'neighbouring schools' wishing they were asked to take part.

When asked about the **roles of different institutions going forward**, in terms of **schools**, the vast majority of respondents (adolescents and adults) thought that schools should (in order of importance): (1) include mental health in the curriculum or form mental health clubs where students can be educated and engage with the content; (2) create counselling units to address the mental health challenges facing students; (3) provide education and mental health training for school teachers; (4) engage parents and raise their awareness of mental health issues; (5) include more leisure or sports sessions in school timetables; and (6) use technology to educate students on mental health. Respondents also agreed that schools could take responsibility for: (1) identifying vulnerable students in order to prioritise their access to support; and (2) raising awareness around mental health more generally through school assemblies.

As regards **government** support for mental health, a handful of respondents felt that the government was responsible for 'drafting policies that enable every (health) centre to have at least one mental health specialist' (KII, clinical psychiatrist, Mwanza) and to provide medicines and guidelines on how best to support people with mental ill health. A few participants stated that the government should establish specialised helpdesks dedicated to mental health support and awareness in schools and the community. It was also suggested that to raise awareness of mental health and the need to invest more resources in services, there is a need for advocacy at all government levels, starting from village meetings to ward development committees, to ward councils and then on to parliament.

Key informants also proposed that the government employ more mental health professionals, especially in rural areas, and devote more funding to mental health units or facilities, including 'free or subsidised access to mental health services' and the inclusion of mental health services in health insurance schemes. Key informants also suggested that greater collaboration between local and international stakeholders would help establish the government's role in addressing adolescent mental health. Finally, one respondent suggested that the government needs to create more local employment opportunities for youth to ease stressors, highlighting the interplay between broader structural conditions and mental health.

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