



Y-Check: Evaluating the effectiveness of adolescent health check-ups

PILOT REPORT

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THRU ZIM
THE HEALTH RESEARCH
UNIT ZIMBABWE



**UK Research
and Innovation**



Executive summary

Y-Check: Evaluating the effectiveness of adolescent health check-ups (Y-Check) is a multi-country research study which aims to develop, implement and evaluate an adolescent health and wellbeing check-up visit intervention. This report summarises the Y-Check pilot study in Chitungwiza, Zimbabwe which was led by The Health Research Unit Zim (THRU ZIM) at the Biomedical Research and Training Institute (BRTI) in collaboration with the London School of Hygiene & Tropical Medicine (LSHTM), the World Health Organization (WHO), Geneva, and partners.

The pilot study took place over a period of six weeks between 6 June 22 and 16 July 22. The pilot intervention team comprised 1 youth champion, 2 research assistants, 2 nurses and 1 counsellor.

The team delivered check-up visits to a total of 171 adolescents with the number of adolescents per day ranging from 3 to 19. Y-Check was delivered on 15 separate days during the pilot study period (7 days primary schools, 5 days secondary schools, and 3 days community hubs).

The most prevalent clinical conditions detected were malnutrition (10%), visual impairment (8%), and anaemia (7%), and among older adolescents, high blood pressure (13%). A high proportion of adolescents were flagged for psychosocial issues based on their response to the self-completed screening tool. In total, 21/168 (13%) participants received 25 referrals to external service providers across all conditions.

The success of the Y-Check pilot study was facilitated by good engagement with the pilot study schools. There was a high level of recruitment in the two primary schools. The Y-Check team were welcoming and youth-friendly which led to a good level of acceptance of the intervention among participants.

The main challenges faced were low levels of parental consent at secondary schools, technical problems with the digital screening tool and screening algorithms, and challenges setting up and

implementing referral pathways. Due to delays in acquiring the testing equipment and/or in engaging external experts to provide training, some conditions could not be screened for in the pilot study or were only included part-way through the pilot.

Following the pilot study, the protocol was amended to widen the eligible age range to include 14- year-olds in primary school and 15-year-olds in secondary schools. Exit interviews were added along with the testing for and treatment of schistosomiasis haematobium. Procedural changes focused on reducing the length of the check-up visit and on making the screening tool and overall check-up visit more youth-friendly. An additional two-day pilot study was held in mid-October 2022 to further test and refine the procedures.

The main Y-Check study started on the 19th October 2022 and will continue until the end of 2023. School and community engagement activities have been intensified to encourage higher levels of parental consent in the main study and to develop a supportive environment for healthy behaviours.



1 Preparation for Pilot

Preparation for the Y-Check pilot study started in November 2021 with stakeholder engagement meetings and co-design workshops with adolescents. Study tools and protocols were developed.

1.1 Stakeholder engagement

The Y-Check Youth Advisory Group (YAG) held its first meeting on the 6th June 22. The YAG comprises 7 young people from the Chitungwiza area, 2 from each of the 2 main study Y-Check intervention schools, and 3 out-of-school young people. The meeting involved introductions to Y-Check and the purpose of the YAG, and planning for future meetings and communication via a WhatsApp group

In schools, meetings were initially held with the head teacher, class teachers (Grade 5 in primary schools, Form 3 in secondary schools), guidance and counselling teachers and school health coordinators. During these meetings the classes to participate in the pilot study were selected. The most appropriate timing of student and parent meetings, and the delivery of the intervention were agreed upon. Visits also involved selection of a location on the school premises where Y-Check could set up their tents.



Youth Advisory Group with Y-Check Project Coordinator Farrie Nzvere and Lead Social Scientist Salome Manyau



Photos (from top left to bottom right): Random selection of class to take part in pilot study in Zengeza 1 High school; PI Aoife Doyle and Project Coordinator Farrie Nzvere with the head teacher at Seke 6 High school; Farrie with School Development Committee (SDC) chairman and head teacher at Dungwiza Primary school.

1.2 Referral service providers

The Y-Check team provided health-promotive advice, treatment and counselling on the day of the check-up visit. Participants received on the spot information and counselling for psychosocial issues, common mental health disorders, oral hygiene, substance use and sexual risk behaviours. They received on the spot treatment for anaemia, syndromic management of STIs, and short-term contraceptives. Where required, Y-Check also facilitated onward referral to partner service providers (**Table 1**).

Setting up the referral pathways proved to be time-consuming and convoluted. Although the time taken to set up these pathways varied from service provider to service provider, the setting up process was similar for all service providers. It involved stakeholder mapping, discussions with colleagues and other service providers, meetings and workshops with service providers and setting up Memorandums of Understanding with the service providers.

Table 1: Y-Check conditions and referral service providers

Y-Check Condition	Service Provider
Hearing impairment	Wizear
Visual impairment	Council for the Blind
Mental health	Friendship bench
HIV	Chitungwiza Polyclinics
Epilepsy	Epilepsy Support Foundation
Family Planning	Population Solutions for Health
Malnutrition	Chitungwiza Polyclinics
Voluntary Medical Male Circumcision	ZAZIC consortium
Severe Anaemia	Chitungwiza Central Hospital
Physical impairment	Chitungwiza Central Hospital
Psychosocial issues	Social services, Educational psychologist

Despite having intentions to set up a digital referral system, delays in the system development meant that the pilot referrals documentation was all paper-based. Participants with a referral to a service provider were given a paper form to take to the service provider along with their participant identification (ID) card and the service provider would complete the form when the participant attended the referral.

1.3 Co-design workshops with adolescents

Three workshops were held with adolescents aged 10-19 years in Chitungwiza to co-design the look and feel of the screening tool app including the colours, use of emojis, and inclusion of games. The workshops also focused on refining the screening tool questions to make them more adolescent-friendly. Lastly, a co-design workshop was held with the adolescents to assess the acceptability and feasibility of self-measurement of blood pressure.

1.4 Finalisation of study tools and protocols

Standard operating procedures

Technical Advisory Groups were created for each Y-Check condition. Consisting of local and LSHTM-based condition-specific experts, these groups provided guidance on the most appropriate screening tools and management procedures. Furthermore, consultation with THRU ZIM staff and collaborators was undertaken to further refine the screening procedures. Draft study Standard Operating Procedures were shared with the technical advisory groups before finalisation and initiation of team training.

Translation of data collection tools from English to Shona

The screening tool questions were developed using validated English questionnaires. During the workshops, the adolescents indicated that they preferred responding to the questions in Shona. In order to translate the screening tool, the Y-Check field team was separated into two groups and independently translated the questions into Shona before coming together and deciding on a common translation. Cognitive interviews



with adolescents aged 10-19 were undertaken, using verbal probing techniques, to further refine the translations for certain sections of the screening tool e.g. substance use questions, and to ensure the use of adolescent-friendly language. A sample of the screening tool questionnaire was externally translated to cross-check the accuracy of the internal translation.

Development of ODK data collection form

An Open Data Kit (ODK) form was created to facilitate the completion of the self-administered questionnaire and the collection of screening measurement data of all participants. The last section of the ODK form allowed the nurse to review all the participants screening results and address all flagged issues that required further management or referral.

1.5 Procurement of equipment and consumables

Due to delays in the procurement of equipment and consumables the implementation of hearScreen testing was delayed until the 2nd week of the pilot and testing for the sexually transmitted infections (STIs) Chlamydia Trachomatis (CT) and Neisseria Gonorrhoeae (NG) was outsourced to a commercial lab.

1.6 Staff training

Training took place over 15 days and was led by senior Y-Check staff in collaboration with experienced THRU ZIM staff for particular topics e.g. HIV, STIs, Menstrual Health and Hygiene, ethics and data management. A session on the WHO mental health gap action programme (mh-GAP) guidance was run by a Professor of Psychiatry from the University of Zimbabwe and fed into the mental health and general counselling training sessions. Further training was also provided to all Y-Check staff on provision of Youth Friendly Services.

2 Recruitment

2.1 Recruitment in Schools

2.1.1 Student meeting

A student meeting was held in each school with the target class(es) during which the Y-Check team gave an overview of Y-Check and answered students' questions. The short meeting ended with the playing of the Y-Check song, which was co-developed with adolescents in Chitungwiza during the crowdsourcing competition.

2.1.2 Parent/guardian meeting

The head teacher invited parents/guardians of the eligible students to a meeting at the school through a letter sent home with the student a few days before the planned meeting. At the start of the parent meeting, the Y-Check team demonstrated the different components of the Y-Check intervention



Y-Check team members demonstrating the Y-Check procedures at a parents meeting

2.1.3 Parental consent

Following a general question and answer (Q&A) session, team members went through the details of the information sheet and consent forms with small groups of parents/guardians. Parents were then asked to sign consent forms indicating whether or not they would like their adolescent to receive Y-Check. Some students were represented by a family member or a neighbour who wasn't their parent or guardian. For these students, the representative was asked to take the forms to the relevant parent/guardian for signing. In general, the content of the information sheet and consent forms was well understood by the participants. There were a few minor challenges, for example, the Shona translation of the word 'signature' was misunderstood by some.

A total of 2 parent meetings were held for primary schools and 6 for secondary schools. The first part of the meeting (Y-Check overview, demonstration and Q&A) took an average of 30 minutes and the second part (consenting) took between 30 and 60 minutes, depending on the number of parents in attendance.

Attendance at parent meetings in the primary schools was high (~ 70%), however, in the secondary schools attendance was very low (~28%). In total, the proportion of parents who provided consent for their child to participate was 72% in Primary schools and 33% in Secondary schools.



Y-Check team going through the informed consent process with parents

2.2 Recruitment at Community Hubs

A purposive sample of 35 adolescents was recruited at two community venues, Chitungwiza Publicity in Zengeza, and Young Africa in Seke. Chitungwiza Publicity is an information centre responsible for the promotion and provision of adolescent-oriented services in Chitungwiza. It regularly hosts training courses and workshops targeting young people. Young Africa is a technical and vocational training centre, combined with a private high school that also has a boarding hostel for students who study on campus.

Venue staff in combination with the Y-Check field team invited adolescents who frequented the venues to attend the Y-Check intervention. Due to the small target number of adolescents for the pilot, mobilization attempts were contained to small groups so as not to create too much demand for the Y-Check services. The Y-Check services proved to be highly acceptable and those that received the check-up visit informed their friends and colleagues about Y-Check, leading to large numbers of adolescents turning up looking to be enrolled into Y-Check.

3 Delivery of Y-Check

Over 15 days of piloting, a total of 171 adolescents, were recruited from two primary schools, two secondary schools, and 2 community hubs. Just over half of the participants (55%) were female. The median age of participants was 10.7 years for primary schools, 16.4 years for secondary schools, and 16.7 years for community hubs. Recruitment included participants from each of the three suburbs of Chitungwiza with the highest proportion coming from Seke overall, from St. Mary's in the primary schools, and from Zengeza at the community venues. The vast majority (77%) of those receiving Y-Check at community venues reported that they were in school.

3.1 Registration

When the adolescent arrived for their Y-Check visit, the first step for those in schools was to confirm that their parent/guardian had provided consent for their participation. Participants were then provided information about Y-Check and they provided informed assent (school students) or informed consent (community participants). Their name, contact details and age were recorded in a paper registration book and they were provided with a Y-Check ID card. The Y-Check ID card contained their study ID number, initials and date of birth.



3.2 Self-completion of screening tool

The adolescent was then asked whether they would like to complete the screening tool in Shona or English. The first two questions were practice questions to allow the research assistant to observe whether the adolescent had the ability to self-complete the tool. The tool for primary and secondary schools contained 8 sections and 10 sections for community settings.



Y-Check team delivering services at a primary school



Y-Check team members taking measurements during the check-up visit

3.3 Measurements

The first measurements, mid-upper arm circumference (MUAC, all participants) and the first blood pressure measurement (secondary school and community only) were taken after registration and before completion of the self-completed screening tool. The second blood pressure measurement was taken by the research assistant after section 4 of the self-completed screening tool (secondary school and community only). Following completion of the self-completed screening tool, the research assistant measured the second MUAC and third blood pressure measurement (secondary school and community only). The following additional measurements were taken at this time also:

- Height and weight
- Jump test (for lower limb impairment)
- Grip strength test (for upper limb impairment)
- PEEK (vision screening)

3.4 Nurse review

The last station of the check-up visit was the nurses' station where additional clinical tests were conducted, samples were collected for offsite STI testing (community participants only), issues flagged from the self-completed screening tool were reviewed, and action was taken as required.

The nurse took a finger prick sample of blood to test for anaemia. The hearScreen app was used to conduct a hearing assessment. Participants who failed the initial hearing screen received an ear examination with the removal of wax or foreign bodies as required. If wax or a foreign body was present, the participant was retested using the hearScreen app. All those failing hearScreen received hearTest to measure their level of hearing loss.

Participants in the community only were offered HIV testing (using Oraquick), syndromic management of STIs, and could provide a urine sample for CT/NG testing and a self-taken vaginal swab (females only) for trachimonas vaginalis (TV) testing. Family planning consultation was offered to all community participants and pregnancy tests were conducted if required e.g. prior to the provision of family planning for females or syndromic management of STIs.

The findings from the clinical assessments are presented in **Table 2**.

The Y-Check self-completed screening tool was used to identify adolescents who may be in need of counselling, treatment and/or referral for health or psychosocial issues. Adolescents were 'flagged' green (no action needed), orange (needs further investigation- less concerning) and or red (needs further investigation- more concerning) for 22 issues based on their responses to questions (**Table 3**).

The Y-Check counsellor provided general counselling on any issues affecting the adolescent e.g. problems at home or school. He/she also provided specific counselling for mental health and suicide risk using MhGAP guidance. After counselling the adolescent, the Y-Check counsellor, in collaboration with the nurse, decided whether the participant required referral to an external service provider.

Following review of the flags and clinical assessments, the nurse could take one or more of the following actions:

- Provide health information, treatment, and/or brief counselling
- Refer the participant to the Y-Check counsellor for further assessment and counselling
- Refer the participant to an external service provider

The nurse could also decide that this was a 'false flag' i.e. the participant had been incorrectly flagged.

Participants who required referral to external providers were provided with a referral letter indicating their screening results and any additional notes that may aid the service provider in providing the required management. For some conditions, participants were asked to hold off attending the referral provider until Y-Check had been in touch e.g. where the details of the referral pathway were still being finalized and/or where Y-Check would organize transport for a group of participants and their carers to attend a Harare based service provider.



Y-Check nurse providing health information and commodities to a participant

In total, 21 participants were referred to external providers for 25 conditions (**Table 4**). Regardless of whether they had been flagged for an issue or not, all participants received health promotion information including exercise, oral hygiene, and a toothcare kit. Females also received reusable menstrual hygiene products, soap and underwear along with guidance on how to use and care for the pads and underwear. All participants received a letter addressed to their parent/guardian to indicate the outcome of the Y-Check visit and if required, a referral letter.

Table 2 Summary of clinical assessments in Y-Check pilot study

	Primary		Secondary		Community		Total
	Females (n=46)	Males (n=38)	Female s (n=27)	Males (n=22)	Female s (n=19)	Males (n=16)	N=168
Blood pressure							
Stage 1 Hypertension	NA	NA	44.4%	13.6%	21.1%	12.5%	21/84 (25.0%)
Stage 2 Hypertension	NA	NA	11.1%	13.6%	21.1%	6.3%	11/84 (13.1%)
Anaemia¹							
Moderate	0%	0%	23.8%	5.6%	5.3%	6.3%	8 (6.4%)
Severe	0%	0%	0%	0%	5.3%	0%	1 (0.8%)
BMI²							
Severe thinness	0%	0%	0%	4.6%	0%	0%	1 (0.6%)
Thinness	15.2%	5.3%	0%	0%	0%	0%	9 (5.4%)
Overweight	8.7%	7.9%	18.5%	0%	21.1%	0%	16 (9.5%)
Obese	4.4%	2.6%	3.7%	0%	10.5%	6.3%	7 (4.2%)
Visual impairment³	6.9%	0% ²	4.8%	20.0%	21.1%	0%	10 (8.2%) ²
Hearing impairment⁴	0%	0%	0%	0%	0%	12.5%	1/57 (1.8%)
HIV test positive	NA	NA	NA	NA	5.3%	0%	1 (2.9%)
STI test positive⁵							
Chlamydia trachomatis (CT)	NA	NA	NA	NA	5.3%	0%	1 (3.0%)
Neisseria Gonorrhoea (NG)	NA	NA	NA	NA	0%	0%	0 (0%)
Trachimonas vaginalis (TV)	NA	NA	NA	NA	0%	0%	0 (0%)

NA is not applicable

¹ missing for n=33 primary and n=10 secondary school participants.

² categorisations of BMI are approximate as ages of 11.0y, 16.0y and 17.0y were used though some participants were slightly younger or older than these ages;

³ Missing for n=33 primary and n=13 secondary school participants.

⁴ Missing for n=67 primary, n=25 secondary, and n=19 community participants.

⁵ Missing for n=2 male participants in the community.

Table 3 Summary of flags (red flags only)

	Females	Males	Primary	Secondary	Community	Total
	N=92	N=76	N=84	N=49	N=35	N=168
Home	12.0%	14.5%	15.5%	6.1%	17.1%	22 (13.1%)
School/work	26.1%	23.7%	20.2%	28.6%	31.4%	42 (25.0%)
Eating (body image)	31.5%	21.1%	31.0%	18.4%	28.6%	45 (26.8%)
Diet *						
Sleep*						
Screens	28.3%	30.3%	31.0%	16.3%	42.9%	49 (29.2%)
Exercise ¹	28.0%	18.2%	23.9%	20.5%	26.9%	33 (23.4%)
Friend	12.0%	17.1%	17.9%	6.1%	17.1%	24 (14.3%)
Drugs & alcohol	9.8%	7.9%	7.1%	4.1%	20.0%	15 (8.9%)
Smoking ²	2.9%	5.4%	0%	2.6%	11.4%	5 (4.0%)
Sexuality ³	0%	0%	NA	NA	0%	0%
Sexual risk ³	15.8%	31.3%	NA	NA	22.9%	8 (22.9%)
Contraception ³	21.1%	18.8%	NA	NA	20.0%	7 (20.0%)
STI symptoms ³	26.3%	18.8%	NA	NA	22.9%	8 (22.9%)
Mental health	7.6%	4.0%	8.3%	0.0%	8.6%	10 (6.0%)
Suicide risk ²	23.2%	14.3%	15.7%	18.0%	25.7%	24 (19.2%)
Oral hygiene ²	92.8%	82.1%	86.3%	87.2%	91.4%	110 (88.0%)
Physical impairment	20.7%	9.2%	22.6%	4.1%	14.3%	26 (15.5%)
Epilepsy	15.2%	22.4%	25.0%	10.2%	14.3%	31 (18.5%)
Human papillomavirus vaccination ⁴	44.6%	NA	45.7%	48.2%	36.8%	41 (44.6%)
HIV ³	0%	0%	NA	NA	0%	0%
Circumcision ^{3,5}	NA	68.8%	NA	NA	68.8%	11 (68.8%)

*problem with the generation of the flag

¹missing for n=13 primary, n=5 secondary, n=9 community; ²missing for n=33 primary and n=10 secondary; ³community only; ⁴females only; ⁵males only

Table 4 Summary of referrals to external providers

	Primary (n=84)	Secondary (n=49)	Community (n=35)	Total (n=168)
Vision	2	4	3	9
Hearing	0	0	1	1
Eating	1	0	0	1
Malnutrition	6	1	1	8
Mental Health	0	0	1	1
Suicide	1	0	1	2
Epilepsy	1	0	0	1
Severe Anaemia	0	0	1	1
Voluntary medical male circumcision	0	0	1	1
TOTAL referrals	11	5	9	25
Total number of participants referred	9 (10.7%)	5 (10.2%)	7 (20.0%)	21 (12.5%)

3.5 Time taken for screening visit

The time taken to complete the Y-Check visit in the primary schools was estimated to be 1-2 hours (Table 5). In the community, the check-up visit generally took longer due to the additional sexual and reproductive health services, and increased counselling needs.

*Table 5: Estimated time taken for the different steps of the Y-Check visit
(from process evaluation reports)*

	Estimated time taken
Registration	20 minutes
First MUAC and BP	2 minutes
Screening tool –sections 1-5	10 minutes
Second MUAC and BP	2 minutes
Screening tool- sections 6-10	12 minutes
Height, weight	1 minute
Jump test	3 minutes
Grip strength test	2 minutes
PEEK	2 minutes
Nurse review	10-30 minutes
Counsellor	10-30 minutes
Total time	1hour 15 minutes- 2 hours

4 Review of pilot and changes made

4.1 Successes

The success of the Y-Check pilot study was facilitated by very good engagement with the pilot study schools. There was a high level of participation in the two pilot primary schools facilitated by the efforts of the headteacher and class teachers. The Y-Check team were welcoming and youth-friendly which led to a good level of acceptance of the intervention among participants. Additionally, despite the challenges, the pilot highlighted the feasibility of implementing this complex health intervention.

4.2 Challenges

The main challenges faced during the pilot study were low levels of parental consent at secondary schools, technical problems with the digital screening tool and screening algorithms, and challenges setting up and implementing referral pathways. Additional challenges faced included verifying the adolescents' age, especially in the community, and logistical issues with setting up tents and using delicate equipment in a less than ideal environment. Due to delays in acquiring the testing equipment and/or in engaging external experts to provide training, some conditions could not be screened for in the pilot study (fine motor skills, oral examination) or were only included part-way through the pilot (hearing).

4.2.1 Parental consent

Parental meetings were well attended at the primary schools but poorly attended at secondary schools. In response, meetings with secondary school students were held to explain Y-Check and consent forms sent home with the students. However, in the absence of face-to-face contact with the parents, the Y-Check intervention was poorly understood, and parents were reluctant to sign consent forms. This, in addition to some students not taking the consent forms home to their parents/guardians, led to low participation among secondary school students.



4.2.2 Screening tool

The Y-Check intervention has at its core, a tablet-based screening tool which allows the collection of self-completed information from the adolescent, entry of measurements by the research assistants and nurse, flagging of adolescents who may need help with psychosocial or medical issues, and recording of actions taken in response to the flags. A bespoke youth-friendly app was developed for this purpose, but it was not ready to use during the pilot study. Hence, a less user-friendly ODK version of the screening tool was used during the pilot study. The adolescents reported that the screening questions were long and boring. Some adolescents were observed to be rushing through the questions and some questions were not understood by the adolescents. The majority of the 'flags' were working well but some were not working at all or only started working later in the pilot study. Two issues were observed with the flags (i) error in the programming of the algorithm (ii) incorrect specification of the algorithm resulting in too many adolescents being flagged and/or false flags. There were also some reports of adolescents not wanting to open up to the nurse and/or counsellor.

4.2.3 Referral pathways

The process of setting up referral pathways with external service providers was time-consuming and not all pathways had been finalized by the start of the pilot study. As a result some participants had to wait for Y-Check to recontact them before they could access the service provider. This delay was frustrating for the participants and their carers.

4.3 Protocol changes

Following the pilot study, the following protocol changes were made:

- Eligible age range widened to include 14 year olds in primary school and 15 year olds in secondary schools.
- Exit interviews added
- Testing of urine samples for schistosomiasis haematobium and treatment if required

4.4 Procedural changes

The main feedback from the pilot was that the screening visit was too long, so many of the procedural changes aimed to reduce the length of the visit and make the visit more youth-friendly.

Considerable editing took place to the screening tool, flag algorithms and the study Standard Operating Procedures (SOPs). All flags were reviewed for their appropriateness/usefulness. In particular, non-essential questions were removed from the self-completed screening tool to reduce the burden on participants. Further discussions were held with the YAG to improve the comprehensibility of the questions and/or responses. Additional practice questions were added at the start of the self-completed tool, with the Y-Check team encouraged to observe the completion of these questions and to offer assistance and/or interview the participant if required.

Changes were made to the research assistant and nurse completed sections to improve the capturing of key information e.g. a field was included to record if a condition had been previously diagnosed, and the actions that could be taken were edited and more clearly defined in the study SOP.

Following review of the blood pressure (BP) data, we decided that there was limited added value of the 3rd BP measurement. The BP measurement in the middle of the self-reported screening tool also was reported to be disruptive to the adolescent. The BP measurement in the middle of the screening tool was removed and the 3rd BP was moved to the nurse review to be measured only if the 2nd BP was high.

A review of the pilot mid-upper arm circumference (MUAC) measurements found little variation between the two measurements, and so the 2nd MUAC measurement was removed.

To improve the participant's experience, we added portable composting toilets so that participants did not need to walk to the venue toilets, and extra chairs and tents for increased comfort and privacy. The nurse's tent was reorientated to a more friendly layout and additional healthy snacks were provided to participants.

4.5 Discussion

Many of the participants had a low socioeconomic status which impacted on their ability to participate fully in Y-Check e.g. some had challenges reading screening questions due to poor literacy and/or had difficulty concentrating due to hunger. The nurses faced challenges while performing some measurements such as collecting a finger prick blood sample for anaemia testing when the participant was cold. While the use of a self-administered

screening tool was largely successful, the pilot study revealed that for some of the younger adolescents (10-13 years), researcher-administration of the questions may be more appropriate due to relatively low levels of literacy and the complexity of some of the concepts that the tool attempts to capture.

The process of obtaining parental consent was time-consuming and not completely successful in secondary schools. Working in collaboration with the school heads and teachers was greatly beneficial but meant that efforts to attract parents to Y-Check information meetings were sometimes confused with other school meetings such as those discussing school fees. The poor turnout at parents' meetings was also anecdotally reported to be as a result of decreased levels of engagement with school activities by parents with adolescents in secondary schools.

The Y-Check teams' efforts during the pilot phase were primarily devoted to developing and implementing appropriate procedures for this novel and complex intervention. To some extent, the planned youth-friendly and fun aspect of Y-Check was neglected and additional efforts are needed in the main study to ensure that the experience is positive for adolescents despite some periods of waiting as they proceed through the check-up visit.

Challenges in setting up referral pathways for many of the screening conditions highlighted the fact that many of the conditions have previously been neglected more broadly (oral health, substance use) or specifically for adolescents (nutrition, mental health, hypertension). In some cases, there is an apparent disconnect between what the central Ministries and non-governmental organisation head offices understand is being implemented and what is actually being implemented in settings such as Chitungwiza. Local

government health facilities have limited resources and, despite being willing, were not always in a position to provide referral services or assessments. A lack of trust in the public health services was highlighted by parents and adolescents as a potential flaw in the Y-Check referral pathways and led to doubt amongst them as to whether they would receive the services they needed at these facilities.

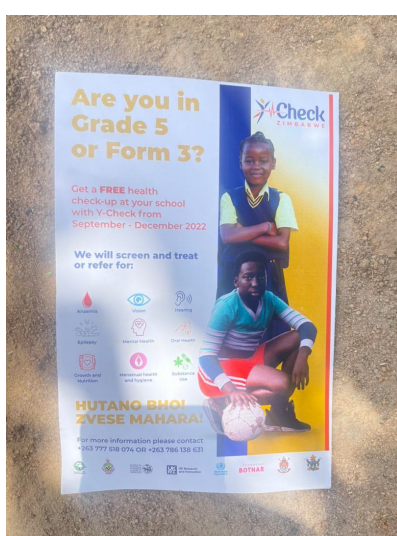
We observed strong support for Y-Check from schools and local communities with many of the health conditions and issues being considered priorities. Some of the health behaviours which Y-Check would like to encourage may be difficult for adolescents to implement given their limited resources and reliance on parents and carers (e.g. eating more fruit, and having access to toothbrushes and toothpaste)

5 Next steps

An additional pilot study (pilot 2) was held on 16th and 17th October 2022 in community settings to pilot test the bespoke app (pilot 1 used ODK), revised screening tool questionnaire, the evaluation questionnaire, the exit interview, and to further pilot test procedures that were not sufficiently piloted during pilot 1 (hearScreen and hearTest, in-house STI testing, oral examination and fluoride gel application, fine motor skills test). A video explaining how to use the Y-Check app was developed and inserted into the app to help adolescents understand how to navigate the screening tool.

The first community Advisory Group meeting was held on 29 July 22 with additional meetings of the Youth Advisory Group held on 19 Aug 22, 5 September 22 and 3 October 22 to further refine the intervention.

The main Y-Check study started on the 19th October 2022 and will continue until the end of 2023. School and community engagement activities have been intensified to encourage higher levels of parental consent in the main study and to develop a supportive environment for healthy behaviours.



Abbreviations

BP	Blood pressure
BMI	Body Mass Index
BRTI	Biomedical Research and Training Institute
CT	Chlamydia Trachomatis
MUAC	Mid upper arm circumference
NG	Neisseria Gonorrhoeae
HPV	Human papillomavirus
ODK	Open Data Kit
LSHTM	London School of Hygiene & Tropical Medicine
THRU ZIM	The Health Research Unit Zimbabwe
WHO	World Health Organization
YAG	Youth Advisory Group
SDC	School Development Committee
STIs	Sexually Transmitted Infections
TV	Trichomonas vaginalis
mh-GAP	WHO Mental health gap action programme



Y-Check: Evaluating the effectiveness of adolescent health check-ups

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LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



THRU ZIM
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