

# A Scoping Review on Peer-led Interventions to Improve Youth Mental Health in Low- and Middle-Income Countries

Dana Chow<sup>1†\*</sup>, Dunstan J. Matungwa<sup>2</sup>, Elizabeth R. Blackwood<sup>3</sup>, Paul Pronyk<sup>4,5</sup>, Dorothy Dow<sup>6,7,8</sup>

## Affiliation

1. Duke-NUS Medical School, Singapore
2. National Institute for Medical Research (NIMR), Mwanza, Tanzania
3. Duke University Medical Center Library & Archives, School of Medicine, Durham, North Carolina, USA
4. Centre for Outbreak Preparedness, Duke-NUS Medical School, Singapore
5. SingHealth Duke-NUS Global Health Institute, Singapore
6. Duke Global Health Institute, Durham, North Carolina, USA
7. Kilimanjaro Christian Medical Center-Duke Collaboration, Moshi, Tanzania
8. Department of Pediatrics, Infectious Diseases, Duke University Medical Center, Durham, NC, USA

Corresponding Author: [danachow@u.duke.nus.edu](mailto:danachow@u.duke.nus.edu)

**Keywords:** Peer-led Interventions, Low- and Middle-Income Countries, Mental Health, Task-Sharing

This peer-reviewed article has been accepted for publication but not yet copyedited or typeset, and so may be subject to change during the production process. The article is considered published and may be cited using its DOI.

10.1017/gmh.2024.149

This is an Open Access article, distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives licence (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is unaltered and is properly cited. The written permission of Cambridge University Press must be obtained for commercial re-use or in order to create a derivative work.

## 1 Abstract

2 **Background:** Youth living in low- and middle-income countries (LMICs) have an increased  
3 vulnerability to mental illnesses, with many lacking access to adequate treatment. There has  
4 been a growing body of interventions using task sharing with trained peer-leaders to address  
5 this mental health gap. This scoping review examines the characteristics, effectiveness,  
6 components of peer delivery and challenges of peer-led mental health interventions for youth  
7 aged 10-24 in LMICs.

8 **Methods:** A key term search strategy was employed across MEDLINE, Embase, Web of  
9 Science, Global Health and Global Index Medicus. Eligibility criteria included young people  
10 aged 10-24 and a peer-led component delivered in any setting in an LMIC. Study selection and  
11 extraction were conducted independently by the first and second authors, with discrepancies  
12 resolved by the senior author. Study characteristics were summarized and presented  
13 descriptively.

14 **Results:** The search identified 5358 citations, and 19 studies were included. There were 14  
15 quantitative, four qualitative and one mixed methods studies reporting mental health outcomes.  
16 Types of interventions were heterogenous but fell within three broad categories: 1) peer-  
17 education and psychoeducation, 2) peer-led psychotherapy and counselling and 3) peer-support.  
18 All studies reported improved mental health outcomes as a result of the peer-led interventions.  
19 Peer-led interventions are versatile in terms of types of interventions and mode of delivery.  
20 Lived experience, mutual respect and reduced stigma make this method a highly unique and  
21 effective way to engage this age group. However, implementing peer-led youth interventions  
22 is not without challenges. Adequate training, supervision, cultural appropriateness and support  
23 from established institutions are critical to safeguarding and ensuring the sustainability of such  
24 programs.

25 **Conclusion:** Our findings suggest that peer-led models are a valuable intervention strategy that  
26 policymakers can leverage in current and future efforts to address youth mental health in  
27 LMICs. Future areas of research should expand to include the perspectives of other key  
28 stakeholders involved in the implementation of peer-led mental health interventions, focusing  
29 on factors including fidelity, feasibility, and acceptability to enhance implementation insights.  
30

## 31 Impact Statement

32 Adolescence, a critical stage marked by significant physical, mental, and social changes, often  
33 leaves youth vulnerable to mental health challenges. This vulnerability is exacerbated in low-  
34 and middle-income countries (LMICs), where there is an increased risk of mental distress due  
35 to poverty, environmental instability, and limited access to healthcare services. In LMICs,  
36 where 90% of the world's youth reside, the mental health treatment gap is stark. Task-shifting,  
37 which involves redistributing mental health care tasks to less specialized workers, has emerged  
38 as a viable solution to address this gap. This scoping review examines the effectiveness of peer-  
39 led mental health interventions for youth aged 10-24 in LMICs, highlighting their potential to  
40 improve mental health outcomes through relatable, culturally sensitive support. Despite diverse  
41 approaches—ranging from psychoeducation and psychotherapy to peer support—the  
42 consistent positive impact underscores the potential of peer-led strategies. The success of such  
43 interventions hinges on rigorous training, ongoing supervision, cultural sensitivity, and  
44 institutional backing to ensure their effectiveness and sustainability. This review highlights the  
45 versatility, impacts and challenges of peer-led interventions, advocating for their broader  
46 implementation to enhance youth mental health in LMICs.

47

48

## 49 1. Introduction

50 Adolescence is a stage of life marked by pronounced changes to the body, mind, and social  
51 environment (Lowenthal et al. 2014). The intricacies of navigating through this turbulent  
52 period often leave youth vulnerable to mental distress. Approximately 75% of mental health  
53 disorders present by the age of 24 years (Das et al. 2016). Youth living in low- or middle-  
54 income countries (LMICs) are at an increased vulnerability to mental illnesses due to  
55 circumstances such as increased prevalence of poverty, environmental instability, and lack of  
56 access to medical and mental health services (Pedersen et al. 2019). In LMICs, where 90% of  
57 the world's youth live, the mental health treatment gap is the most severe (Nations 2017). The  
58 median number of psychiatrists per 100,000 population in LMICs is 0.05, compared to 8.59 in  
59 high-income countries (HICs), resulting in three-quarters of individuals in need of mental  
60 health services unable to access them (Le et al. 2022; Luitel et al. 2015).

61  
62 Task-shifting or sharing has been increasingly cited as a potential approach to respond to unmet  
63 needs of countries with a scarcity of specialized mental health care providers (Triece et al.  
64 2022). Task-shifting or sharing is the redistribution of care usually provided by those with  
65 formalized training (i.e. psychiatrists) to individuals with little or no formal training (i.e. lay  
66 health workers). The literature has shown that with training and continued supervision, lay  
67 health workers can effectively deliver psychological treatments (van Ginneken et al. 2013).

68  
69 Specifically, there has been a growing body of studies using task sharing with peer groups for  
70 intervention delivery (Stokar et al. 2014). A peer is defined as a person who shares common  
71 sociodemographic characteristics and/or lived experiences of a condition, event, or disorder  
72 with the target population (Farkas and Boevink 2018; Pedersen et al. 2019). In the literature,  
73 trained peers are referred to with various terms, including “peer-leaders” (Stokar et al. 2014),  
74 “peer educators”, “peer-volunteers” (Maselko et al. 2020), “peer-facilitators” (Alcock et al.  
75 2009), “peer-counsellors” (Nankunda et al. 2010), “peer-mentors” (Shroufi et al. 2013) and  
76 “peer-supporters” (Nkonki et al. 2010). For the purpose of this review, we will use the term  
77 “peer leaders” to refer to trained peers who deliver interventions. This will also distinguish  
78 these interventions from those involving peer support within group therapy sessions led by  
79 professional mental health specialists. Peer-led mental health services are grounded on the  
80 concept of peer support, which is the provision of emotional appraisal and informational  
81 assistance through access to a social network (Dennis 2003; Embuldeniya et al. 2013). The

82 knowledge of a disease stems from lived experiences and peer-leaders are typically trained to  
83 deliver specific interventions but lack professional status through academic or professional  
84 qualifications (Pedersen et al. 2019). This camaraderie provides qualities unique to peer  
85 support by offering validation of lived experiences, building rapport, and establishing bonds  
86 (Linnemayr et al. 2021; Mancini 2018). Individuals who are from the local community are  
87 found to relate better to the target group and could share approaches to dealing with distress  
88 that were in line with existing sociocultural contexts (Petersen et al. 2012). This was  
89 particularly useful for cultural nuances that may be delicate for an outsider to address, such as  
90 prevailing customs or patriarchal realities. Peer-delivery of mental health interventions has  
91 also been proposed as a cost-effective yet feasible and acceptable solution to address human  
92 resource challenges (Maselko et al. 2020; Sikander et al. 2019) thereby filling a gap in mental  
93 health treatment.

94

95 There have been several reviews of peer-led mental health interventions, but none specifically  
96 explored their impact on youth mental health in LMICs—a unique demographic with a specific  
97 set of challenges—and led by peers who are themselves youth (Bhana et al. 2021; de Beer et  
98 al. 2022; Hoefl et al. 2018; Sikkema et al. 2015). This scoping review profiles the evidence for  
99 peer-led interventions to improve the mental health of youth aged 10-24 and living in LMICs  
100 with the aim of informing development of impactful interventions to address this crucial gap.

101 Key research questions we explored include:

- 102 1) What are the characteristics and outcomes of existing peer-led mental health  
103 interventions in LMICs?
- 104 2) What are the components required to enable peer-leaders to act as key agents in  
105 intervention delivery?
- 106 3) How effective are peer-led interventions in improving youth mental health outcomes in  
107 LMICs? What mechanisms make them more effective than if led by adults or non-peers?
- 108 4) What are the challenges to implementing such interventions?

109

110

111

## 112 2. Methods

### 113 2.1 Search strategy

114 The search was developed and conducted by a professional medical librarian in consultation  
115 with the author team and included a mix of keywords and subject headings representing  
116 adolescents, mental health, peer support, and LMICs. The searches were independently peer  
117 reviewed by another librarian using a modified PRESS Checklist (McGowan et al. 2016).

118  
119 Search hedges or database filters were used to remove publication types such as editorials,  
120 letters, books, book chapter, essays, conference proceedings, and comments as was appropriate  
121 for each database. Searches were conducted in MEDLINE via Ovid, Embase via Elsevier, Web  
122 of Science via Clarivate, Global Health via EBSCO, and Global Index Medicus via WHO. The  
123 searches were executed on August 31, 2023 and found 3,404 unique citations. A search update  
124 conducted on September 6, 2024 to identify newly published studies found an additional 403  
125 studies. Key search terms included “adolescent”, “youth”, “mental health”, “peer” and “LMIC”.  
126 Complete reproducible search strategies, including search filters, for all databases are detailed  
127 in the Supplementary Materials.

128

### 129 2.2 Study selection

130 All citations were imported into Covidence, a systematic review screening software, which was  
131 also used to remove duplicates. Initial inclusion and exclusion based on the title and abstract  
132 were made independently by the first author (DC) and second author (DJM). Potentially  
133 relevant studies were selected and the full text reviewed by the first and second authors. Any  
134 discrepancies were resolved by the senior author (DD).

135

### 136 2.3 Eligibility criteria

137 Eligibility criteria were specified based on the PICOS model of Population, Intervention,  
138 Comparison, Outcome and Study type. Included studies were required to have an intervention  
139 that included young people aged 10-24 making up at least 50% of the study population, a peer-  
140 led component, been conducted in any setting (i.e. community, hospital, schools, refugee  
141 camps, online etc.), and been delivered in a LMIC. LMIC was defined according to the World  
142 Bank List. While we recognise the significant diversity among LMICs, spanning various  
143 continents and cultural contexts, we have chosen to include all LMICs as they share common  
144 structural and socioeconomic barriers that impact the delivery of health interventions. By

145 including broad spectrum of LMICs, this study can identify patterns and insights that can  
146 inform scalable, context-specific solutions. Both quantitative and qualitative data were  
147 acceptable, but had to include a measured form of mental health, either distress (i.e. depression,  
148 anxiety, suicidal ideation attempt etc.) or wellness (i.e. resilience, self-efficacy etc.). To be  
149 included, qualitative outcomes had to specifically document a change in mental health/distress  
150 in relation to a peer-led intervention.

151

## 152 2.4 Data extraction

153 Data extraction was conducted using Covidence to support the extraction of relevant and  
154 detailed information including author, year of publication, study design, country, and  
155 intervention details. The extraction was similarly performed by authors DC and DJM and  
156 discrepancies resolved by DD.

157

## 158 2.5 Data analysis

159 The characteristics of the studies were summarised and presented descriptively to illustrate the  
160 scope of the included literature. Due to the heterogeneity of studies and scales used, it was not  
161 possible to conduct a meta-analysis. Qualitative studies were reviewed for any specific  
162 outcomes pertaining to mental health, with relevant quotations from participants extracted from  
163 the articles.

# 164 3. Results

## 165 3.1 Characteristics of included studies

166 The search identified 5358 citations, and after excluding duplicates, 3807 articles were  
167 screened using title and abstract. We excluded 3752 studies for key reasons such as irrelevance  
168 to the topic, incorrect target population, intervention and study type. We manually added three  
169 studies (Simms et al. 2022; Katherine E. Venturo-Conerly et al. 2022; Venturo-Conerly et al.  
170 2024). Fifty-eight articles underwent full text screening based on criteria described, and 19  
171 were included (Balaji et al. 2011; Dow et al. 2020; DUBY et al. 2021; Ferris France et al. 2023;  
172 Harrison et al. 2023; Im et al. 2018; Kermode et al. 2021; Mathias et al. 2018; Mathias et al.  
173 2019; Merrill et al. 2023; Mohamadi et al. 2021; Osborn et al. 2023; Osborn et al. 2021; Osborn  
174 et al. 2020; Simms et al. 2022; Tinago et al. 2024; Katherine E. Venturo-Conerly et al. 2022;  
175 Venturo-Conerly et al. 2024; Yuksel and Bahadir-Yilmaz 2019) (Figure 1) (Table 1). Included  
176 studies were conducted between 2011 and 2024. Six studies were conducted in Asia-Pacific:

177 four in India (Balaji et al. 2011; Kermode et al. 2021; Mathias et al. 2018; Mathias et al. 2019),  
178 one in Iran (Mohamadi et al. 2021), one in Turkey (Yuksel and Bahadir-Yilmaz 2019). The  
179 rest were based in Africa: one in Tanzania (Dow et al. 2020), two in South Africa (Duby et al.  
180 2021; Harrison et al. 2023), three in Zimbabwe (Ferris France et al. 2023; Simms et al. 2022;  
181 Tinago et al. 2024), one in Zambia (Merrill et al. 2023) and six in Kenya (Im et al. 2018; Osborn  
182 et al. 2023; Osborn et al. 2021; Osborn et al. 2020; Katherine E. Venturo-Conerly et al. 2022;  
183 Venturo-Conerly et al. 2024). Seven were randomised controlled trials (RCTs) (Balaji et al.  
184 2011; Dow et al. 2020; Merrill et al. 2023; Osborn et al. 2023; Osborn et al. 2021; Osborn et  
185 al. 2020; Venturo-Conerly et al. 2024), three cluster-randomised (Mohamadi et al. 2021;  
186 Simms et al. 2022; Katherine E. Venturo-Conerly et al. 2022) and the rest were quasi-  
187 experimental trials (Duby et al. 2021; Ferris France et al. 2023; Harrison et al. 2023; Im et al.  
188 2018; Kermode et al. 2021; Mathias et al. 2018; Mathias et al. 2019; Tinago et al. 2024; Yuksel  
189 and Bahadir-Yilmaz 2019). There were 14 quantitative (Balaji et al. 2011; Dow et al. 2020; Im  
190 et al. 2018; Kermode et al. 2021; Mathias et al. 2018; Mohamadi et al. 2021; Osborn et al. 2023;  
191 Osborn et al. 2021; Osborn et al. 2020; Simms et al. 2022; Tinago et al. 2024; Katherine E.  
192 Venturo-Conerly et al. 2022; Venturo-Conerly et al. 2024; Yuksel and Bahadir-Yilmaz 2019),  
193 four qualitative (Duby et al. 2021; Ferris France et al. 2023; Mathias et al. 2019; Merrill et al.  
194 2023) and one mixed methods (Harrison et al. 2023) studies. Five studies were pilot trials  
195 (Balaji et al. 2011; Dow et al. 2020; Ferris France et al. 2023; Harrison et al. 2023; Osborn et  
196 al. 2020). Mathias and (2018; 2019) and Kermode et al. (2021) were studies on a related  
197 intervention based on the Nae Disha Curriculum, while Osborn (2021; 2020) and Venturo-  
198 Conerly et al. (2022; 2024) were studies on the Shamiri Intervention. The majority of studies  
199 focused on a general population of youth experiencing mental health difficulties, but four had  
200 specific focus on youth living with human immunodeficiency virus (HIV) (Dow et al. 2020;  
201 Ferris France et al. 2023; Merrill et al. 2023; Simms et al. 2022), four on girls and young  
202 women (Duby et al. 2021; Mathias et al. 2018; Mohamadi et al. 2021), including one on  
203 adolescent mothers (Tinago et al. 2024), and one on youth refugees (Im et al. 2018).

204

### 205 3.2 Types of interventions

206 The studies were heterogenous in terms of the types of interventions, and fell into three main  
207 categories: 1) peer-led psychotherapy and counselling: a therapeutic process facilitated by  
208 trained peers, focusing on improving participants' mental health through structured therapy or  
209 counselling sessions, 2) peer-education and psychoeducation: an approach where peer-leaders



210 teach participants about specific health or psychological topics, with the goal to equip  
211 individuals with knowledge and techniques to enhance their mental health and well-being, and  
212 3) peer-support: a system of informal, mutual support, where peers provide social connection,  
213 encouragement, and a sense of community to foster mental health and well-being. Peer-led  
214 psychotherapy and counselling, which require the highest level of specialization, often include  
215 elements of peer education. All three types of interventions integrate components of peer  
216 support. Eight studies (Dow et al. 2020; Ferris France et al. 2023; Osborn et al. 2023; Osborn  
217 et al. 2021; Osborn et al. 2020; Katherine E. Venturo-Conerly et al. 2022; Venturo-Conerly et  
218 al. 2024) incorporated psychotherapy in their intervention, delivered in settings including the  
219 community, online, schools, and health clinics. Psychological therapies included trauma  
220 informed cognitive behavioural therapy (TI-CBT), interpersonal psychotherapy (IPT),  
221 motivational interviewing (MI), meditation, inquiry-based stress reduction (IBSR), an art-  
222 literacy program, and problem solving therapy (PST). All were conducted in a group setting,  
223 but Dow et al (2020) and Ferris France et al (2023) had also weaved in individual sessions or  
224 activity components. Eight studies (Balaji et al. 2011; Im et al. 2018; Kermode et al. 2021;  
225 Mathias et al. 2018; Mathias et al. 2019; Merrill et al. 2023; Mohamadi et al. 2021; Yuksel and  
226 Bahadir-Yilmaz 2019) used peer education and psychoeducation in their interventions. Settings  
227 included schools, universities, communities, and an HIV clinic. Im et al. (2018) explored the  
228 Trauma-Informed Psychoeducation (TIPE) intervention to promote refugee resilience, conflict  
229 resolution, impact of trauma on the body and emotional coping. Kermode and Mathias (2021;  
230 2018; 2019) ran interventions adapted from the same Nae Disha curriculum involving the  
231 formation of Youth Wellness Groups and interactive modules on self identity, self esteem,  
232 relationship and communication skills, drawing boundaries, and managing emotions. Most  
233 were delivered as classroom-based group sessions, with Merrill et al. (2023) additionally  
234 incorporating individual meetings and Balaji et al. (2011) organising street plays. Peer support  
235 was utilised by three studies (Duby et al. 2021; Harrison et al. 2023; Tinago et al. 2024), and  
236 involved creation of spaces to form social networks and facilitate discussions at hospitals,  
237 universities, and community clubs.

238

### 239 3.3 Description of peer-leaders: recruitment, training and support

240 A variety of terms were used to refer to the peer-leaders including “peer-educators”,  
241 “community adolescent treatment supporters”, “community youth leaders”, “group leaders”,  
242 “youth peer mentors”, “student lay supporters”, “peer mentors”, “lay-providers”. All studies

243 involved peer-leaders who were locally based lay-persons, similar in age group and shared  
244 geographical, linguistic, cultural and in most cases, health conditions with the target population,  
245 along with no formal qualification, qualifying them to be called peers. The age group of peer-  
246 leaders ranged from 18 to 30 years old, although several studies did not specify it (Table 2).

247

248 The criteria to be a peer-leader varied according to the target community, but share similarities  
249 in terms of language and skills requirements. Four studies (Dow et al. 2020; Ferris France et  
250 al. 2023; Merrill et al. 2023; Simms et al. 2022) with focus on young people living with HIV  
251 (YPLWH) recruited peer-leaders who were also living with HIV. Dow et al. (2020) expanded  
252 their recruitment to also include young adults with prior experience with mental health research.  
253 At least 10 studies specified requirements for standard of education (Kermode et al. 2021;  
254 Mathias et al. 2018; Mathias et al. 2019; Osborn et al. 2023; Osborn et al. 2021; Osborn et al.  
255 2020; Tinago et al. 2024; Katherine E. Venturo-Conerly et al. 2022; Venturo-Conerly et al.  
256 2024; Yuksel and Bahadir-Yilmaz 2019) of which several also specified criteria for language  
257 (Osborn et al. 2021; Osborn et al. 2020), leadership and communication skills, past experiences  
258 and interests (Kermode et al. 2021; Osborn et al. 2023; Katherine E. Venturo-Conerly et al.  
259 2022; Venturo-Conerly et al. 2024; Yuksel and Bahadir-Yilmaz 2019). Selection and  
260 recruitment processes for peer-leaders were sometimes detailed. Osborn et al. (2023; 2021;  
261 2020) recruited from local universities and high school graduate forums using a written  
262 application and interview process. Venturo-Conerly et al. (2022; 2024) selected youths based  
263 on online applications and in-person semi-structured interviews. Mathias et al. (2019) invited  
264 potential peer-leaders for community meetings and interview. Tinago et al. (2024) recruited  
265 peer educators via snowball sampling and in-person meetings. A few studies selected peer-  
266 leaders instead, based on scores on a pubertal health questionnaire (Mohamadi et al. 2021),  
267 assessment of readiness and capacity (Simms et al. 2022), academic grade and interviews with  
268 faculty (Yuksel and Bahadir-Yilmaz 2019).

269

270 Within the psychotherapy intervention type, the training period spanned from four days to three  
271 weeks. Training topics included specific therapy techniques, interpersonal and leadership skills,  
272 and often utilised role playing. Notably, Osborn et al. (2023; 2020), Simms et al. (2022),  
273 Venturo-Conerly et al. (2024) trained their peer-leaders in clinical risk assessment and making  
274 referrals to relevant support (i.e. mental health services, school resources). Studies in the peer  
275 education and psychoeducation intervention type had their trainings spanning one day to two  
276 weeks on program content and curriculum. Notably, Merrill et al. (2023) held practice meetings

277 for one month after the initial two week training period, and Mathias et al. (2018; 2019) had  
278 instated refresher training during the intervention period. Within the three studies utilising peer  
279 support as their intervention, only Tinago et al. (2024) had specified their training type, with a  
280 three day session on the subject matter. Most trainings were led by the research team. Four  
281 studies included a psychologist or mental health specialist (Balaji et al. 2011; Dow et al. 2020;  
282 Harrison et al. 2023; Venturo-Conerly et al. 2024), and Ferris France et al. (2023) used local  
283 adult coaches living with HIV and trained in IBSR to conduct the training of trainers.

284

285 Nine studies described having regular supervision meetings weekly (Balaji et al. 2011; Dow et  
286 al. 2020; Mathias et al. 2019; Osborn et al. 2023; Osborn et al. 2021; Simms et al. 2022;  
287 Katherine E. Venturo-Conerly et al. 2022; Venturo-Conerly et al. 2024) and monthly (Tinago  
288 et al. 2024) to review previous sessions as well as prepare for upcoming sessions. Nine studies  
289 explicitly stated the availability of adult coaches or research staff at each intervention session  
290 to provide support where needed (Balaji et al. 2011; Ferris France et al. 2023; Harrison et al.  
291 2023; Mathias et al. 2018; Merrill et al. 2023; Osborn et al. 2023; Osborn et al. 2021; Katherine  
292 E. Venturo-Conerly et al. 2022; Venturo-Conerly et al. 2024). This includes youth leaders  
293 facilitating alongside community health counsellors (Im et al. 2018), team leaders stepping in  
294 if a youth leader was absent (Mathias et al. 2018) or unable to deal with a situation outside their  
295 scope of knowledge (Merrill et al. 2023), and readily available care in case of potential risk  
296 identified during the intervention (Venturo-Conerly et al. 2024). Two studies regularly utilised  
297 fidelity checklists throughout the study to ensure intervention quality (Dow et al. 2020; Ferris  
298 France et al. 2023). Three studies (Osborn et al. 2023; Tinago et al. 2024; Katherine E. Venturo-  
299 Conerly et al. 2022) used WhatsApp, an online instant messaging application as an adjunct to  
300 support communications, while Mohamadi et al. (2021) and Yuksel and Bahadir-Yilmaz (2019)  
301 mentioned an ongoing relationship between peer-leaders and the research team.

302

303 Only six studies (Balaji et al. 2011; Mathias et al. 2019; Merrill et al. 2023; Osborn et al. 2023;  
304 Katherine E. Venturo-Conerly et al. 2022; Venturo-Conerly et al. 2024) detailed a form of  
305 remuneration for the peer-leaders. Osborn et al. (2023) and Venturo-Conerly et al. (2022; 2024)  
306 paid a stipend of \$150 and covered transportation costs throughout the intervention period (K.  
307 E. Venturo-Conerly et al. 2022), Balaji et al. (2011) provided “moderate monetary” and other  
308 incentives (i.e. certificates), while Mathias et al. (2019) and Merrill et al. (2023) simply stated  
309 that peer-leaders were paid (without including the amount).

310

### 311 3.4 Key findings in mental health outcomes

312 The studies used various instruments to measure mental health outcomes. General mental  
313 health symptoms were measured using the General Health Questionnaire-12 (GHQ-12),  
314 Strengths and Difficulties Questionnaire (SDQ), Symptom Checklist-25 (SCL-25), Social  
315 Support Questionnaire (SSQ), WHO-5 Well-being Index, Psychological Outcomes Profile,  
316 Beck Youth Inventories Second Edition (BYI-II), Child Attitudes Toward Illness Scale  
317 (CATIS), Short-Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), Shona Symptom  
318 Questionnaire (SSQ), Persian Standard Symptom Checklist-25 (SCL-25). Anxiety was  
319 measured with the Generalised Anxiety Disorder-7 (GAD-7), depression with the Patient  
320 Health Questionnaire -9 and -8 (PHQ-9, PHQ-8), and post-traumatic stress using the UCLA  
321 PTSD Reaction Index survey, PTSD Check List – Civilian Version (PCL-C). Other mental  
322 health scales include Connor-Davidson Resilience Scale (CD-RISC), Schwarzer general self-  
323 efficacy scale, Multidimensional Scale of Perceived Social Support (MSPSS), Perceived  
324 Control Scale for Children (PCS), Ways of Coping Inventory (WCI), and Peer and Significant  
325 Adult Support (PSAS).

326

327 All quantitative studies reported that peer-led interventions led to improvements in at least one  
328 mental health symptom scale (Table 1). Studies exploring general mental health symptoms  
329 reported an improvement in scores for mental health symptoms, probable depression and  
330 suicidal behaviour, as well as an intervention effect on the prevalence and severity of common  
331 mental health outcomes. Studies measuring depression and anxiety reported a larger decrease  
332 in scores in the intervention than the standard of care or active control groups. Two studies  
333 examined PTSD symptoms and reported an improvement in scores in the intervention group  
334 (Dow et al. 2020; Im et al. 2018). None had reported worsening of mental health as a result of  
335 the intervention.

336

337 Qualitative studies similarly reported improvements in mental health (Table 3). There were  
338 reports of improved self-esteem, confidence and self-worth (Duby et al. 2021; Ferris France et  
339 al. 2023; Merrill et al. 2023), combating feelings of isolation with community building  
340 (Harrison et al. 2023; Mathias et al. 2019; Merrill et al. 2023), and improved mental health  
341 (Mathias et al. 2019).

342

### 343 3.5 Cultural considerations during implementation

344 Several studies specified consideration of the respective country's sociocultural context during  
345 development of their intervention. (Dow et al. 2020; Im et al. 2018; Mathias et al. 2018; Osborn  
346 et al. 2021; Osborn et al. 2020). This entailed, for example, conducting group sessions with  
347 YPLHIV in same sex groups with sex-concordant peer-leaders (Dow et al. 2020) or adopting  
348 common colloquial terms related to mental health (cultural idioms) identified by local  
349 community partners to avoid pathologizing trauma responses with western terminology (Im et  
350 al. 2018). However, several studies also acknowledged the use of mental health measures that  
351 have not been validated or adapted to the cultural context was inevitable due to the lack of  
352 alternatives (Dow et al. 2020; Im et al. 2018; Osborn et al. 2021; Osborn et al. 2020).

353

### 354 3.6 The mechanisms that make peer-led interventions effective and their 355 implementation challenges

356 Several studies reported specific aspects of having a peer-led component, detailing mechanisms  
357 that made the intervention more effective than if it had been delivered by adults or non-peers  
358 (Table 4). Such mechanisms include the provision of a unique form of emotional support where  
359 youth could relate on a peer-to-peer level (Duby et al. 2021; Simms et al. 2022). Participants  
360 similarly appreciated the ability to connect with peer-leaders given their similar age and lived  
361 experiences, for instance, the shared experiences of living with HIV (Merrill et al. 2023). There  
362 was also a preference for peer delivery when it came to sensitive topics such as Sexual and  
363 Reproductive Health (SRH) (Duby et al. 2021; Merrill et al. 2023; Tinago et al. 2024). The  
364 enhanced sense of community was well received, with participants describing the alleviation  
365 of social isolation, and increased social support (Harrison et al. 2023; Im et al. 2018; Tinago et  
366 al. 2024). In some studies, participants praised positive qualities of peer-leaders, such as  
367 patience, kindness and respect (Mathias et al. 2019). Studies also reported the added benefit of  
368 peer-led interventions to the peer-leaders themselves, that they increased their self-confidence  
369 and leadership ability (Balaji et al. 2011; Ferris France et al. 2023), and allowed them to learn  
370 from the participants and gain new experiences (Harrison et al. 2023).

371

372 However, several challenges to peer-led intervention were also reported. There were issues  
373 with adherence of peer-leaders to the intervention, with many citing other commitments to  
374 school or house work, inconvenient locations and timings (Balaji et al. 2011). Furthermore,  
375 integrating a peer-led system into existing structures is expensive and requires much support

376 from institutions to overcome logistical barriers (Ferris France et al. 2023; Osborn et al. 2021).  
377 This was similarly echoed by Kermode et al. (2021), who reported that a lot of support was  
378 required by the project team to ensure the success of the peer-led intervention. Harrison et al.  
379 (2023) described an emotional toll that peer-leaders face when sharing their own stories and  
380 striving to understand and support participants, further underscoring the importance of  
381 providing adequate support to peer-leaders.

## 382 4. Discussion

383 There is a critical need to address the youth mental health gap in LMICs, and task-sharing with  
384 peer-leaders presents a possible solution. The purpose of this review was to identify  
385 intervention trials that utilised peer-led approaches to address youth mental health in LMICs,  
386 and to synthesise the types of interventions, delivery components, effectiveness, benefits and  
387 challenges encountered during implementation. The inclusion of pilot studies and quasi-  
388 experimental trials contributed to an overview of peer-led mental health interventions that are  
389 currently in the developmental phase. Our review suggests that a diverse range of peer-led  
390 interventions can generate positive improvements in mental health among adolescents in  
391 LMICs.

392

### 393 4.1 Peer-led interventions can improve mental health outcomes of youth living in 394 LMICs

395 Peer-led interventions included in this review were highly heterogenous in terms of design,  
396 mode of delivery and content. Yet, all reported improvements in different mental health  
397 outcomes, highlighting their versatility to be adopted in many contexts. Within peer  
398 psychotherapy and counselling interventions, studies used either group and individual therapy  
399 or didactic lectures and non-didactic methods (i.e. music reflection, poem, group discussions,  
400 podcast making) to increase youth engagement (Balaji et al. 2011; Duby et al. 2021; Osborn et  
401 al. 2021; Osborn et al. 2020). Previous research has demonstrated that peer-delivered  
402 psychotherapy is effective for youth living in LMICs (Singla et al. 2021; Tomfohr-Madsen et  
403 al. 2022) and outperforms waitlist and active control conditions (Venturo-Conerly et al. 2023).  
404 For vulnerable individuals facing stigmatising mental illnesses, peer delivery may be the most  
405 acceptable and most culturally appropriate method to receive evidence-based treatment  
406 (Tomfohr-Madsen et al. 2022). Peer education sessions adopted group classroom sessions,  
407 street plays, participation in community activities and one to one meetings. Peer education has



408 been reported to be enjoyable and preferred, and can even be more effective than information  
409 transmission by professionals, especially when it comes to sensitive topics (Topping 2022).  
410 This review also suggests that the provision of a peer-support network was enough to alleviate  
411 some mental health symptoms. Social support serves as a way to build an in-group community  
412 to mitigate social isolation, which is associated with poor mental health outcomes (Grønlie and  
413 Dageid 2017; Leigh-Hunt et al. 2017). The perception of social support is sometimes more  
414 important than the actual support received, and acts as a coping mechanism for daily stressors  
415 and a protective mechanism against the development of more severe psychological distress  
416 (Casale et al. 2019). The key benefit of peer support is the mutual benefit to all parties involved  
417 in giving and receiving support (Arndt and Naudé 2020).

418

#### 419 4.2 Key components to cultivate effective peer-leaders

420 The TRUST framework (Training, Referral pathways, Understanding the remit of their role,  
421 Supervision, and recognition that Talking helps) outlines the needs of young peer supporters  
422 (Simms et al. 2022; Wogrin et al. 2021). Training of peer-leaders was mentioned in all studies  
423 included in this review, and was often conducted directly by the research team or by adult  
424 coaches (Ferris France et al. 2023). While training is critical for adult and youth leaders alike,  
425 it was especially important for youth leaders as they were often younger and had less education  
426 and work experience compared to adults (Maticka-Tyndale and Barnett 2010). To mitigate this,  
427 it was helpful to provide guidance on the topics of health literacy, cultural practices, mental  
428 health, as well as the soft-skills of communication, leadership and conflict resolution. Refresher  
429 trainings, included in two studies (Mathias et al. 2018; Mathias et al. 2019), have been shown  
430 to be useful for longer interventions to ensure reinforcement of accurate information,  
431 adjustments and feedback (Maticka-Tyndale and Barnett 2010). Similarly, many studies  
432 involved regular supervision sessions to ensure proper conduct of intervention sessions with  
433 an opportunity to adapt intervention delivery based on feedback. Effective supervision was  
434 critical, and studies without supervision showed diminished quality and fidelity in intervention  
435 delivery (M 2002). Youth engagement can be challenging and emotionally draining (Simms et  
436 al. 2022), and regular supervision with the research team can help prevent the development of  
437 secondary trauma and ensure the welfare of the youth leaders. Osborn et al. (2023) provided a  
438 relevant protocol for the training and supervision of lay youth providers, which can guide future  
439 research and implementation of peer-led interventions.

440

### 441 4.3 Cultural appropriateness and generalisability in reporting mental health

442 Cultural appropriateness allows for the acceptability of an intervention, affecting the  
443 effectiveness and the generalisability of study outcomes. There is a lack of culturally validated  
444 mental health scales in LMICs, and many studies currently use scales validated in HICs (Kaiser  
445 et al. 2022). This makes it difficult to effectively assess and generalise quantitative clinical  
446 improvement in mental health in LMICs. Qualitative methods of assessing mental health  
447 interventions may be beneficial in such circumstances, and Ferris France et al. (2023) had  
448 justified their intentional use of a qualitative rather than quantitative assessment of their  
449 intervention by likening the comparison of health outcomes scales across different cultures to  
450 comparing chopsticks with forks. Moreover, mental health is still a highly stigmatized topic,  
451 which can affect participant reporting of symptoms and therefore study outcomes. Several  
452 studies reasoned a low baseline report of symptoms due to reluctance in reporting mental health  
453 difficulties (Im et al. 2018) and challenges in articulating feelings and emotions (Ferris France  
454 et al. 2023). Venturo-Conerly (2022) has adapted principles from the Belmont Report  
455 (Department of Health et al. 2014) and Declaration of Helsinki (World Medical 2013) to form  
456 guidelines for addressing risk in high stigma environments. Methods that can ensure cultural  
457 appropriateness would be including local mental health providers familiar with local resources,  
458 regulations and norms, who can identify nuances of distress that may indicate risk. Training  
459 lay providers in risk assessment and the appropriate channels for escalation and management  
460 is also crucial.

461

### 462 4.4 Sustainability of peer-led interventions

463 Ideally, once an intervention is implemented and effective, it would continue without reliance  
464 on the research team. For this to happen, it needs to be integrated within existing structures  
465 through partnerships with governments and established institutions. This is the goal of many  
466 interventions (Im et al. 2018). Some studies reported that benefits of the intervention might  
467 revert back to baseline once the group stops meeting regularly (Kermode et al. 2021; Mathias  
468 et al. 2018). However, facilitating such institutional or governmental partnerships is often a  
469 challenge (Kelly et al. 2006; Maticka-Tyndale and Barnett 2010). This is echoed by several  
470 studies that listed integrating peer education into existing educational institutions as a barrier,  
471 citing the lack of support for peer-educators and the research team, and poor cooperation from  
472 teachers and school administrators (Balaji et al. 2011; Mohamadi et al. 2021). Osborn et al.  
473 (2021) reported an unexpected government ban on research activities in educational institutions



474 that limited the assessment of an extended timepoint and led to significant attrition in  
475 participant attendance. Several studies (Dow et al. 2020; Osborn et al. 2021; Osborn et al. 2020)  
476 have integrated peer-led interventions into stepped-care models, where at-risk youth are  
477 referred to trained adult clinical providers within established care systems to address elevated  
478 symptoms and emergencies. Peer-led models do not function in isolation; their integration into  
479 existing care systems ensures a more seamless process for connecting new interventions with  
480 established frameworks. However, the reliance of sustainability on external organisations leave  
481 them vulnerable to sudden policy changes and motivations of the existing structures. It is  
482 therefore vital for research teams to empower the youth and their communities and establish  
483 delivery mechanisms that reduce barriers to these partnerships. To overcome such challenges,  
484 Dow et al. (2020) developed a protocolized manual allowing for scalability and reproducibility,  
485 while Ferris France et al. (2023) provided an online Toolkit to offer continuous support and  
486 mentoring to peer coaches.

487

#### 488 4.5 Benefits and challenges to task shifting to peer-leaders

489 The benefits and challenges of a peer-led intervention reported by studies in this review have  
490 similarly been described in the literature. Peer-led interventions allow for the contribution of  
491 lived experience, which makes interventions more equitable and contextually acceptable. Peers  
492 have been used globally in the delivery of maternal mental health care, and a systematic review  
493 by Atif (2015) reported that peers who were mothers themselves were perceived as more  
494 trustworthy, friendly and experienced and likely to share personal insights to benefit other  
495 mothers (Nankunda et al. 2010). Moreover, the study reported that peer openness about their  
496 health status contributed to overcoming illness related stigma (i.e. HIV status). Peer-led  
497 interventions are beneficial to adolescents as they provide a unique form of rapport that allows  
498 discussions of sensitive topics such as sexual health (Visser 2007). Adolescents frequently  
499 relate more easily with a peer and communicate in a language that is understandable and  
500 accessible (Visser 2007). Positive peer interactions also allow for role-modeling, and often  
501 peer-leaders are viewed as educators in their communities who can impart contextually relevant  
502 information (Atif 2015). A key benefit of a peer-led component is the reciprocity and mutual  
503 benefit to the giver and receiver of the intervention (Naudé 2017). Positive peer interactions  
504 are associated with higher self-esteem, wellbeing and health literacy for all parties involved in  
505 the delivery of a peer-led intervention (Naudé 2017). The act of delivering an intervention can

506 also improve confidence, fulfilment and life-skills, and can even improve an individual's social  
507 status and mobility within communities (Alcock et al. 2009; Atif 2015).

508

509 Barriers to implementing a peer-led intervention include ensuring a stable workforce. Peer-  
510 leaders may leave for university, seek other employment opportunities or eventually age out of  
511 the role, requiring ongoing training of an evolving workforce (Okoroafor and Dela Christmas  
512 2023). In addition, adolescents often lack full control over their time and environment, with  
513 non-adherence commonly resulting from school, home-commitments and travel. Balaji et al.  
514 (2011) emphasises the importance of incentives such as remuneration, certificates, and prizes  
515 to help support the project. Providing compensation also allows lay-providers to devote time  
516 and energy to intervention training and delivery, freeing them from the need for alternative  
517 employment (K Venturo-Conerly et al. 2022). Peer facilitators require significant support from  
518 the team, including time for training and supervision, as well as mentorship from trained staff  
519 (Kermode et al. 2021). Although lay-providers have been showed to effectively deliver mental  
520 health interventions (Sikander et al. 2019; Singla et al. 2017), there is reluctance in trusting the  
521 ability of task-shifted workers to carry out tasks with the same quality as a trained professionals  
522 (Kermode et al. 2021). A recent meta-analysis indicates that they may not achieve the same  
523 level of effectiveness as professionals (Venturo-Conerly et al. 2023). However, it is crucial to  
524 understand that peer-led interventions are not intended to replace those provided by trained  
525 professionals, but rather to serve as a scalable, accessible, and affordable (Singla et al. 2021)  
526 alternative to address the mental health treatment gap in low-resource settings with insufficient  
527 professional human resources. Therefore, despite these existing challenges, peer-led  
528 interventions remain a promising public health strategy for improving youth mental health in  
529 LMICs.

530

#### 531 4.6 Limitations

532 This review is not without limitations. It is possible that eligible articles were left out by our  
533 search method, either due to database selection, applied inclusion and exclusion criteria or  
534 missed search terms. Moreover, many of the studies included in this review are pilot studies or  
535 cross-sectional studies without a comparative group. At least three studies cited a small sample  
536 size (Mathias et al. 2018; Osborn et al. 2020) and inadequate power (Balaji et al. 2011), which  
537 limits generalisability. There is also a potential publication bias where published literature may  
538 over-represent positive outcomes. This, along with the absence of a formal quality assessment

539 of the included studies, can prevent a more accurate appraisal of the value of reported results  
540 to the field. Furthermore, this scoping review aimed to include all LMICs, which are inherently  
541 diverse in terms of cultural contexts, health systems, and social landscapes, potentially making  
542 generalisations among them inaccurate. A fourth limitation arises from incomplete information  
543 of the characteristics of certain interventions, where several studies offer a limited description  
544 of their intervention components. Combined with the heterogeneity of the studies included, this  
545 constituted an obstacle in comparing these studies. While the authors have attempted to  
546 minimise this by extracting information from available study protocols, the adoption of  
547 standardized presentation and evaluation for such peer-led youth mental health interventions  
548 will be helpful to support future meta-analyses and improve the comparability of study results.

## 549 Conclusions

550 This scoping review highlights the breadth of peer-led interventions targeting youth mental  
551 health in LMICs, shedding light on their unique mechanisms of promoting mental health with  
552 lived experience, camaraderie and reciprocity. Future research should expand to include the  
553 perspectives of key stakeholders—peer-leaders, research teams, and regulatory bodies—  
554 focusing on factors including fidelity, feasibility, and acceptability to enhance implementation  
555 insights. While peer-led interventions still rely on adult professional support, they represent a  
556 valuable, scalable and practical strategy to bridge the human resources gap in youth mental  
557 health across LMICs.

## 558 Acknowledgements

559 We would like to acknowledge and thank the authors of all the studies reviewed. Thank you to  
560 Beth Blackwood for helping to develop and execute the search strategy.

## 561 Author Contributions

562 DWSC, DJM, DD: refining the scope of the review, data screening, extraction, analysis,  
563 literature search, manuscript writing and review; BB: development and execution of the search  
564 strategy; PP: refining the scope of the review, manuscript review; DWSC, DJM: formatting  
565 tables and figures; all authors read and approved the final manuscript.

## 566 Financial Support

567 This study is supported by Duke-NUS Medical School and its Open Access publishing  
568 agreement with Cambridge.

## 569 Conflict of Interest

570 The authors declare that the research was conducted in the absence of any commercial or  
571 financial relationships that could be construed as a potential conflict of interest.

## 572 Data Availability Statement

573 Additional review data will be shared upon request by inquiry to the corresponding author.  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585

## 586 References

- 587 **Alcock GA, More NS, Patil S, Porel M, Vaidya L and Osrin D** (2009) Community-based  
588 health programmes: role perceptions and experiences of female peer facilitators in  
589 Mumbai's urban slums. *Health Education Research* **24**(6), 957-966.
- 590 **Arndt N and Naudé L** (2020) Responsibility in the face of adversity: Adolescents' sense of  
591 self in reciprocal relationships. *Youth & Society* **52**(2), 288-307.
- 592 **Atif N** (2015) *The acceptability of peer volunteers as delivery agents of a psychosocial*  
593 *intervention for perinatal depression in rural Pakistan: a qualitative study*. The  
594 University of Manchester (United Kingdom).
- 595 **Balaji M, Andrews T, Andrew G and Patel V** (2011) The acceptability, feasibility, and  
596 effectiveness of a population-based intervention to promote youth health: an  
597 exploratory study in Goa, India. *J Adolesc Health* **48**(5), 453-460.  
598 <https://doi.org/10.1016/j.jadohealth.2010.07.029>.
- 599 **Bhana A, Kreniske P, Pather A, Abas MA and Mellins CA** (2021) Interventions to  
600 address the mental health of adolescents and young adults living with or affected by  
601 HIV: state of the evidence. *J Int AIDS Soc* **24 Suppl 2**(Suppl 2), e25713.  
602 <https://doi.org/10.1002/jia2.25713>.
- 603 **Casale M, Boyes M, Pantelic M, Toska E and Cluver L** (2019) Suicidal thoughts and  
604 behaviour among South African adolescents living with HIV: Can social support  
605 buffer the impact of stigma? *Journal of affective disorders* **245**, 82-90.

- 606 **Das JK, Salam RA, Lassi ZS, Khan MN, Mahmood W, Patel V and Bhutta ZA** (2016)  
 607 Interventions for Adolescent Mental Health: An Overview of Systematic Reviews. *J*  
 608 *Adolesc Health* **59**(4S), S49-S60. <https://doi.org/10.1016/j.jadohealth.2016.06.020>.
- 609 **de Beer CRM, Nooteboom LA, van Domburgh L, de Vreugd M, Schoones JW and**  
 610 **Vermeiren R** (2022) A systematic review exploring youth peer support for young  
 611 people with mental health problems. *Eur Child Adolesc Psychiatry*.  
 612 <https://doi.org/10.1007/s00787-022-02120-5>.
- 613 **Dennis CL** (2003) Peer support within a health care context: a concept analysis. *Int J Nurs*  
 614 *Stud* **40**(3), 321-332. [https://doi.org/10.1016/s0020-7489\(02\)00092-5](https://doi.org/10.1016/s0020-7489(02)00092-5).
- 615 **Department of Health E, Welfare, National Commission for the Protection of Human**  
 616 **Subjects of B and Behavioral R** (2014) The Belmont Report. Ethical principles and  
 617 guidelines for the protection of human subjects of research. *J Am Coll Dent* **81**(3), 4-  
 618 13.
- 619 **Dow DE, Mmbaga BT, Gallis JA, Turner EL, Gandhi M, Cunningham CK and**  
 620 **O'Donnell KE** (2020) A group-based mental health intervention for young people  
 621 living with HIV in Tanzania: results of a pilot individually randomized group  
 622 treatment trial. *BMC Public Health* **20**(1), 1358. [https://doi.org/10.1186/s12889-020-](https://doi.org/10.1186/s12889-020-09380-3)  
 623 [09380-3](https://doi.org/10.1186/s12889-020-09380-3).
- 624 **Duby Z, Verwoerd W, McClinton Appollis T, Jonas K, Maruping K, Dietrich JJ,**  
 625 **LoVette A, Kuo C, Vanleeuw L and Mathews C** (2021) "In this place we have  
 626 found sisterhood": perceptions of how participating in a peer-group club intervention  
 627 benefited South African adolescent girls and young women. *International Journal of*  
 628 *Adolescence and Youth* **26**(1), 127-142.  
 629 <https://doi.org/10.1080/02673843.2021.1898423>.
- 630 **Embuldeniya G, Veinot P, Bell E, Bell M, Nyhof-Young J, Sale JE and Britten N** (2013)  
 631 The experience and impact of chronic disease peer support interventions: a qualitative  
 632 synthesis. *Patient Educ Couns* **92**(1), 3-12. <https://doi.org/10.1016/j.pec.2013.02.002>.
- 633 **Farkas M and Boevink W** (2018) Peer delivered services in mental health care in 2018:  
 634 infancy or adolescence? *World Psychiatry* **17**(2), 222-224.  
 635 <https://doi.org/10.1002/wps.20530>.
- 636 **Ferris France N, Byrne E, Nyamwanza O, Munatsi V, Willis N, Conroy R, Vumbunu S,**  
 637 **Chinembiri M, Maedziso S, Katsande MA, Dongo TA, Crehan E and Mavhu W**  
 638 (2023) Wakakosha "You are Worth it": reported impact of a community-based, peer-  
 639 led HIV self-stigma intervention to improve self-worth and wellbeing among young  
 640 people living with HIV in Zimbabwe. *Front Public Health* **11**, 1235150.  
 641 <https://doi.org/10.3389/fpubh.2023.1235150>.
- 642 **Grønlie AA and Dageid W** (2017) Subjective well-being among HIV-positive South  
 643 Africans: The influence of resilience and social capital. *Social Indicators Research*  
 644 **131**, 1251-1268.
- 645 **Harrison A, Mtukushe B, Kuo C, Wilson-Barthes M, Davidson B, Sher R, Galarraga O**  
 646 **and Hoare J** (2023) Better Together: acceptability, feasibility and preliminary impact  
 647 of chronic illness peer support groups for South African adolescents and young adults.  
 648 *J Int AIDS Soc* **26** Suppl 4(Suppl 4), e26148. <https://doi.org/10.1002/jia2.26148>.
- 649 **Hoefl TJ, Fortney JC, Patel V and Unutzer J** (2018) Task-Sharing Approaches to Improve  
 650 Mental Health Care in Rural and Other Low-Resource Settings: A Systematic  
 651 Review. *J Rural Health* **34**(1), 48-62. <https://doi.org/10.1111/jrh.12229>.
- 652 **Im H, Jettner JF, Warsame AH, Isse MM, Khoury D and Ross AI** (2018) Trauma-  
 653 Informed Psychoeducation for Somali Refugee Youth in Urban Kenya: Effects on  
 654 PTSD and Psychosocial Outcomes. *J Child Adolesc Trauma* **11**(4), 431-441.  
 655 <https://doi.org/10.1007/s40653-017-0200-x>.



- 656 **Kaiser BN, Ticao C, Anoje C, Boglosa J, Gafaar T, Minto J and Kohrt BA** (2022)  
 657 Challenges in simultaneous validation of mental health screening tools in multiple  
 658 languages: Adolescent assessments in Hausa and Pidgin in Nigeria. *SSM-Mental*  
 659 *Health* **2**, 100168.
- 660 **Kelly JA, Somlai AM, Benotsch EG, Amirkhanian YA, Fernandez MI, Stevenson LY,**  
 661 **Sitzler CA, McAuliffe TL, Brown KD and Opgenorth KM** (2006) Programmes,  
 662 resources, and needs of HIV-prevention nongovernmental organizations (NGOs) in  
 663 Africa, Central/Eastern Europe and Central Asia, Latin America and the Caribbean.  
 664 *AIDS Care* **18**(1), 12-21. <https://doi.org/10.1080/09540120500101757>.
- 665 **Kermode M, Grills N, Singh P and Mathias K** (2021) Improving Social Inclusion for  
 666 Young People Affected by Mental Illness in Uttarakhand, India. *Community Ment*  
 667 *Health J* **57**(1), 136-143. <https://doi.org/10.1007/s10597-020-00623-6>.
- 668 **Le PD, Eschliman EL, Grivel MM, Tang J, Cho YG, Yang X, Tay C, Li T, Bass J and**  
 669 **Yang LH** (2022) Barriers and facilitators to implementation of evidence-based task-  
 670 sharing mental health interventions in low- and middle-income countries: a systematic  
 671 review using implementation science frameworks. *Implement Sci* **17**(1), 4.  
 672 <https://doi.org/10.1186/s13012-021-01179-z>.
- 673 **Leigh-Hunt N, Bagguley D, Bash K, Turner V, Turnbull S, Valtorta N and Caan W**  
 674 (2017) An overview of systematic reviews on the public health consequences of  
 675 social isolation and loneliness. *Public health* **152**, 157-171.
- 676 **Linnemayr S, Zutshi R, Shadel W, Pedersen E, DeYoreo M and Tucker J** (2021) Text  
 677 Messaging Intervention for Young Smokers Experiencing Homelessness: Lessons  
 678 Learned From a Randomized Controlled Trial. *JMIR Mhealth Uhealth* **9**(4), e23989.  
 679 <https://doi.org/10.2196/23989>.
- 680 **Lowenthal ED, Bakeera-Kitaka S, Marukutira T, Chapman J, Goldrath K and Ferrand**  
 681 **RA** (2014) Perinatally acquired HIV infection in adolescents from sub-Saharan  
 682 Africa: a review of emerging challenges. *Lancet Infect Dis* **14**(7), 627-639.  
 683 [https://doi.org/10.1016/S1473-3099\(13\)70363-3](https://doi.org/10.1016/S1473-3099(13)70363-3).
- 684 **Luitel NP, Jordans MJ, Adhikari A, Upadhaya N, Hanlon C, Lund C and Komproe IH**  
 685 (2015) Mental health care in Nepal: current situation and challenges for development  
 686 of a district mental health care plan. *Confl Health* **9**, 3.  
 687 <https://doi.org/10.1186/s13031-014-0030-5>.
- 688 **M S** (2002) Youth for each other programme: Rapid impact assessment. Nepal Red Cross  
 689 Society Junior/Youth Department HIV/AIDS Prevention Programme.
- 690 **Mancini MA** (2018) An Exploration of Factors that Effect the Implementation of Peer  
 691 Support Services in Community Mental Health Settings. *Community Ment Health J*  
 692 **54**(2), 127-137. <https://doi.org/10.1007/s10597-017-0145-4>.
- 693 **Maselko J, Sikander S, Turner EL, Bates LM, Ahmad I, Atif N, Baranov V, Bhalotra S,**  
 694 **Bibi A and Bibi T** (2020) Effectiveness of a peer-delivered, psychosocial  
 695 intervention on maternal depression and child development at 3 years postnatal: a  
 696 cluster randomised trial in Pakistan. *The Lancet Psychiatry* **7**(9), 775-787.
- 697 **Mathias K, Pandey A, Armstrong G, Diksha P and Kermode M** (2018) Outcomes of a  
 698 brief mental health and resilience pilot intervention for young women in an urban  
 699 slum in Dehradun, North India: a quasi-experimental study. *Int J Ment Health Syst* **12**,  
 700 47. <https://doi.org/10.1186/s13033-018-0226-y>.
- 701 **Mathias K, Singh P, Butcher N, Grills N, Srinivasan V and Kermode M** (2019)  
 702 Promoting social inclusion for young people affected by psycho-social disability in  
 703 India—a realist evaluation of a pilot intervention. *Global Public Health* **14**(12), 1718-  
 704 1732.

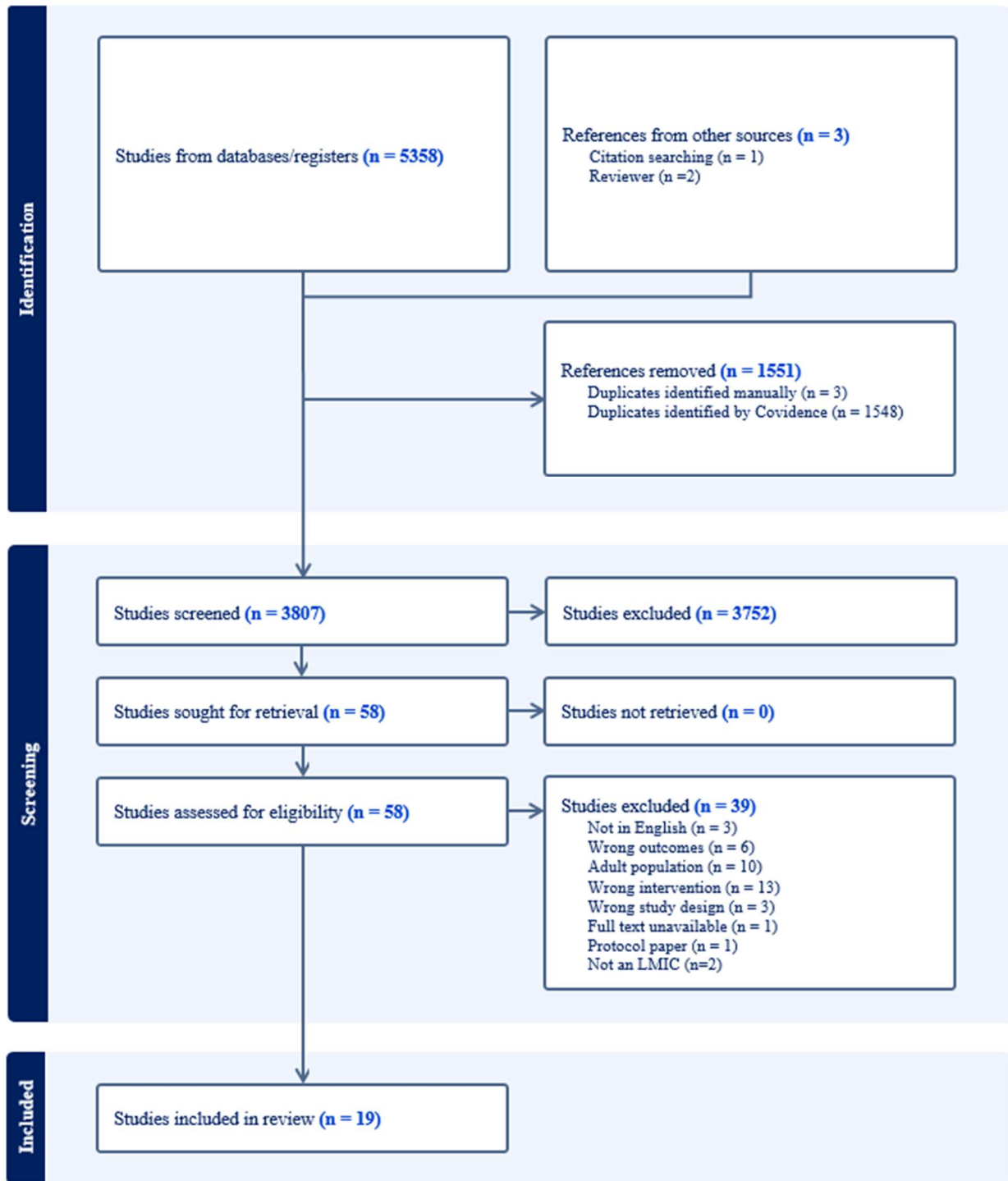
- 705 **Maticka-Tyndale E and Barnett JP** (2010) Peer-led interventions to reduce HIV risk of  
 706 youth: a review. *Eval Program Plann* **33**(2), 98-112.  
 707 <https://doi.org/10.1016/j.evalprogplan.2009.07.001>.
- 708 **McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V and Lefebvre C** (2016)  
 709 PRESS Peer Review of Electronic Search Strategies: 2015 Guideline Statement. *J*  
 710 *Clin Epidemiol* **75**, 40-46. <https://doi.org/10.1016/j.jclinepi.2016.01.021>.
- 711 **Merrill KG, Frimpong C, Burke VM, Abrams EA, Miti S, Mwansa JK and Denison JA**  
 712 (2023) "Project YES! has given me a task to reach undetectable": Qualitative findings  
 713 from a peer mentoring program for youth living with HIV in Zambia. *PLoS One*  
 714 **18**(10), e0292719. <https://doi.org/10.1371/journal.pone.0292719>.
- 715 **Mohamadi S, Paryab S, Mousavi SA, Keramat A, Motaghi Z and Garkaz O** (2021)  
 716 Comparison of the effect of motivational interview and peer group education on  
 717 knowledge and performance about puberty and mental health in adolescent girls.  
 718 *Journal of Nursing and Midwifery Sciences* **8**(3), 178-185.
- 719 **Nankunda J, Tumwine JK, Nankabirwa V and Tylleskär T** (2010) " She would sit with  
 720 me": mothers' experiences of individual peer support for exclusive breastfeeding in  
 721 Uganda. *International breastfeeding journal* **5**, 1-13.
- 722 **Nations U** (2017) World Population Prospects: The 2017 Revision, Key Findings and  
 723 Advance Tables. United Nations, Department of Economic and Social Affairs,  
 724 Population Division.
- 725 **Naudé NAaL** (2017) Responsibility in the Face of Adversity: Adolescents' Sense of Self in  
 726 Reciprocal Relationships. *Youth & Society* **52**(2).  
 727 <https://doi.org/https://doi.org/10.1177/0044118X17743992>.
- 728 **Nkonki LL, Daniels KL and group P-Es** (2010) Selling a service: experiences of peer  
 729 supporters while promoting exclusive infant feeding in three sites in South Africa.  
 730 *International breastfeeding journal* **5**, 1-12.
- 731 **Okoroafor SC and Dela Christmals C** (2023) Health Professions Education Strategies for  
 732 Enhancing Capacity for Task-Shifting and Task-Sharing Implementation in Africa: A  
 733 Scoping Review. *J Contin Educ Health Prof.*  
 734 <https://doi.org/10.1097/CEH.0000000000000517>.
- 735 **Osborn TL, Ndetei DM, Sacco PL, Mutiso V and Sommer D** (2023) An arts-literacy  
 736 intervention for adolescent depression and anxiety symptoms: outcomes of a  
 737 randomised controlled trial of Pre-Texts with Kenyan adolescents. *EClinicalMedicine*  
 738 **66**, 102288. <https://doi.org/10.1016/j.eclinm.2023.102288>.
- 739 **Osborn TL, Venturo-Conerly KE, Arango GS, Roe E, Rodriguez M, Alemu RG, Gan J,**  
 740 **Wasil AR, Otieno BH, Rusch T, Ndetei DM, Wasanga C, Schleider JL and Weisz**  
 741 **JR** (2021) Effect of Shamiri Layperson-Provided Intervention vs Study Skills Control  
 742 Intervention for Depression and Anxiety Symptoms in Adolescents in Kenya: A  
 743 Randomized Clinical Trial. *JAMA Psychiatry* **78**(8), 829-837.  
 744 <https://doi.org/10.1001/jamapsychiatry.2021.1129>.
- 745 **Osborn TL, Venturo-Conerly KE, Wasil AR, Rodriguez M, Roe E, Alemu R, Arango**  
 746 **GS, Gan J, Wasanga C, Schleider JL and Weisz JR** (2020) The Shamiri group  
 747 intervention for adolescent anxiety and depression: study protocol for a randomized  
 748 controlled trial of a lay-provider-delivered, school-based intervention in Kenya. *Trials*  
 749 **21**(1), 938. <https://doi.org/10.1186/s13063-020-04732-1>.
- 750 **Pedersen GA, Smallegange E, Coetzee A, Hartog K, Turner J, Jordans MJD and Brown**  
 751 **FL** (2019) A Systematic Review of the Evidence for Family and Parenting  
 752 Interventions in Low- and Middle-Income Countries: Child and Youth Mental Health  
 753 Outcomes. *Journal of Child and Family Studies* **28**(8), 2036-2055.  
 754 <https://doi.org/10.1007/s10826-019-01399-4>.

- 755 **Petersen I, Baillie K, Bhana A, Health M and Consortium PRP** (2012) Understanding the  
 756 benefits and challenges of community engagement in the development of community  
 757 mental health services for common mental disorders: lessons from a case study in a  
 758 rural South African subdistrict site. *Transcultural psychiatry* **49**(3-4), 418-437.
- 759 **Shroufi A, Mafara E, Saint-Sauveur JF, Taziwa F and Viñoles MC** (2013) Mother to  
 760 mother (M2M) peer support for women in prevention of mother to child transmission  
 761 (PMTCT) programmes: a qualitative study. *PLoS One* **8**(6), e64717.
- 762 **Sikander S, Ahmad I, Atif N, Zaidi A, Vanobberghen F, Weiss HA, Nisar A, Tabana H,**  
 763 **Ain QU and Bibi A** (2019) Delivering the Thinking Healthy Programme for perinatal  
 764 depression through volunteer peers: a cluster randomised controlled trial in Pakistan.  
 765 *The Lancet Psychiatry* **6**(2), 128-139.
- 766 **Sikkema KJ, Dennis AC, Watt MH, Choi KW, Yemeke TT and Joska JA** (2015)  
 767 Improving mental health among people living with HIV: a review of intervention  
 768 trials in low- and middle-income countries. *Glob Ment Health (Camb)* **2**.  
 769 <https://doi.org/10.1017/gmh.2015.17>.
- 770 **Simms V, Weiss HA, Chinoda S, Mutsinze A, Bernays S, Verhey R, Wogrin C, Apollo**  
 771 **T, Mugurungi O, Sithole D, Chibanda D and Willis N** (2022) Peer-led counselling  
 772 with problem discussion therapy for adolescents living with HIV in Zimbabwe: A  
 773 cluster-randomised trial. *PLoS Med* **19**(1), e1003887.  
 774 <https://doi.org/10.1371/journal.pmed.1003887>.
- 775 **Singla DR, Kohrt BA, Murray LK, Anand A, Chorpita BF and Patel V** (2017)  
 776 Psychological treatments for the world: lessons from low-and middle-income  
 777 countries. *Annual review of clinical psychology* **13**(1), 149-181.
- 778 **Singla DR, Meltzer-Brody SE, Silver RK, Vigod SN, Kim JJ, La Porte LM, Ravitz P,**  
 779 **Schiller CE, Schoueri-Mychasiw N, Hollon SD, Kiss A, Clark D, Dalfen AK,**  
 780 **Dimidjian S, Gaynes BN, Katz SR, Lawson A, Leszcz M, Maunder RG, Mulsant**  
 781 **BH, Murphy KE, Naslund JA, Reyes-Rodriguez ML, Stuebe AM, Dennis CL**  
 782 **and Patel V** (2021) Scaling Up Maternal Mental healthcare by Increasing access to  
 783 Treatment (SUMMIT) through non-specialist providers and telemedicine: a study  
 784 protocol for a non-inferiority randomized controlled trial. *Trials* **22**(1), 186.  
 785 <https://doi.org/10.1186/s13063-021-05075-1>.
- 786 **Stokar YN, Baum NL, Plischke A and Ziv Y** (2014) The Key to Resilience: A Peer Based  
 787 Youth Leader Training and Support Program. *Journal of Child & Adolescent Trauma*  
 788 **7**(2), 111-120. <https://doi.org/10.1007/s40653-014-0016-x>.
- 789 **Tinago CB, Frongillo EA, Warren AM, Chitiyo V, Jackson TN, Cifarelli AK,**  
 790 **Fyalkowski S and Pauline V** (2024) Testing the Effectiveness of a Community-  
 791 Based Peer Support Intervention to Mitigate Social Isolation and Stigma of  
 792 Adolescent Motherhood in Zimbabwe. *Matern Child Health J* **28**(4), 657-666.  
 793 <https://doi.org/10.1007/s10995-023-03821-2>.
- 794 **Tomfohr-Madsen LM, Roos LE, Madsen JW, Leason J, Singla DR, Charlebois J,**  
 795 **Tomasi P and Chaput KH** (2022) Peer-Led Psychotherapy: The Time Is Now. *J*  
 796 *Clin Psychiatry* **83**(3). <https://doi.org/10.4088/JCP.21lr14366a>.
- 797 **Topping KJ** (2022) Peer Education and Peer Counselling for Health and Well-Being: A  
 798 Review of Reviews. *Int J Environ Res Public Health* **19**(10).  
 799 <https://doi.org/10.3390/ijerph19106064>.
- 800 **Triece P, Massazza A and Fuhr DC** (2022) Effectiveness and implementation outcomes for  
 801 peer-delivered mental health interventions in low- and middle-income countries: a  
 802 mixed-methods systematic review. *Soc Psychiatry Psychiatr Epidemiol* **57**(9), 1731-  
 803 1747. <https://doi.org/10.1007/s00127-022-02294-y>.



- 804 **van Ginneken N, Tharyan P, Lewin S, Rao GN, Meera SM, Pian J, Chandrashekar S**  
 805 **and Patel V** (2013) Non-specialist health worker interventions for the care of mental,  
 806 neurological and substance-abuse disorders in low- and middle-income countries.  
 807 *Cochrane Database Syst Rev* (11), CD009149.  
 808 <https://doi.org/10.1002/14651858.CD009149.pub2>.
- 809 **Venturo-Conerly K, Roe E, Wasil A, Osborn T, Ndeti D, Musyimi C, Mutiso V,**  
 810 **Wasanga C and Weisz JR** (2022) Training and supervising lay providers in Kenya:  
 811 Strategies and mixed-methods outcomes☆☆☆. *Cognitive and Behavioral Practice*  
 812 **29**(3), 666-681.
- 813 **Venturo-Conerly KE, Eisenman D, Wasil AR, Singla DR and Weisz JR** (2023) Meta-  
 814 analysis: the effectiveness of youth psychotherapy interventions in low-and middle-  
 815 income countries. *Journal of the American Academy of Child & Adolescent*  
 816 *Psychiatry* **62**(8), 859-873.
- 817 **Venturo-Conerly KE, Osborn TL, Alemu R, Roe E, Rodriguez M, Gan J, Arango S,**  
 818 **Wasil A, Wasanga C and Weisz JR** (2022) Single-session interventions for  
 819 adolescent anxiety and depression symptoms in Kenya: A cluster-randomized  
 820 controlled trial. *Behaviour research and therapy* **151**, 104040.
- 821 **Venturo-Conerly KE, Osborn TL, Rusch T, Ochuku BK, Johnson NE, van der Markt**  
 822 **A, Wasanga CM and Weisz JR** (2024) Testing the Shamiri Intervention and Its  
 823 Components With Kenyan Adolescents During the COVID-19 Pandemic: Outcomes  
 824 of a Universal, Five-Arm Randomized Controlled Trial. *Journal of the American*  
 825 *Academy of Child & Adolescent Psychiatry*.
- 826 **Venturo-Conerly KE, Wasil AR, Osborn TL, Puffer ES, Weisz JR and Wasanga CM**  
 827 (2022) Designing Culturally and Contextually Sensitive Protocols for Suicide Risk in  
 828 Global Mental Health: Lessons From Research With Adolescents in Kenya. *J Am*  
 829 *Acad Child Adolesc Psychiatry* **61**(9), 1074-1077.  
 830 <https://doi.org/10.1016/j.jaac.2022.02.005>.
- 831 **Visser MJ** (2007) HIV/AIDS prevention through peer education and support in secondary  
 832 schools in South Africa. *SAHARA J* **4**(3), 678-694.  
 833 <https://doi.org/10.1080/17290376.2007.9724891>.
- 834 **Wogrin C, Willis N, Mutsinze A, Chinoda S, Verhey R, Chibanda D and Bernays S**  
 835 (2021) It helps to talk: A guiding framework (TRUST) for peer support in delivering  
 836 mental health care for adolescents living with HIV. *PLoS One* **16**(3), e0248018.  
 837 <https://doi.org/10.1371/journal.pone.0248018>.
- 838 **World Medical A** (2013) World Medical Association Declaration of Helsinki: ethical  
 839 principles for medical research involving human subjects. *JAMA* **310**(20), 2191-2194.  
 840 <https://doi.org/10.1001/jama.2013.281053>.
- 841 **Yuksel A and Bahadir-Yilmaz E** (2019) The effect of mentoring program on adjustment to  
 842 university and ways of coping with stress in nursing students: A quasi-experimental  
 843 study. *Nurse Educ Today* **80**, 52-58. <https://doi.org/10.1016/j.nedt.2019.06.006>.
- 844

845 Figure 1: PRISMA Flowchart



846

847

## Tables

848

Table 1: Data extraction of included studies

Author, Year and Country	Aim, study design and data type	Participants	Intervention and setting	Control or comparator	Description of peer leaders	Mental health measure	Key findings
<b>PSYCHOTHERAPY AND COUNSELLING</b>							
Dow et al. 2020 Country: Tanzania	Aim: To establish 1) the feasibility and acceptability of the pilot Sauti ya Vijana (SYV) intervention and 2) to conduct exploratory analyses on the impact of SYV on outcomes including mental health, stigma, ART adherence and HIV RNA  Study design: Randomized controlled trial  Data type: Quantitative	Young people living with HIV who attended the adolescent HIV clinic at Kilimanjaro Christian Medical Centre (KCMC) or Mawenzi Regional Referral Hospital (MRRH)  Age range: 12-24 Mean age: 18.1  N=93	Intervention: Psychotherapy  Description: SYV, 10 weekly group sessions (two held jointly with caregivers) and two individual sessions incorporating trauma informed cognitive behavioral therapy, interpersonal psychotherapy, and motivational interviewing. Participants were split into same sex groups with sex-concordant peer leaders.  Setting: Community	Routine monthly attendance to adolescent clinic with adherence counseling following Tanzanian guidelines	Young adults (23-30 years old) with background of either living with HIV and/or having prior experience with mental health research. They underwent a two-week intensive training with the Principal Investigator and clinical psychologists with weekly supervision sessions.	<ul style="list-style-type: none"> <li>• Patient Health Questionnaire (PHQ-9)</li> <li>• Strengths and Difficulties Questionnaire (SDQ)</li> <li>• UCLA Post Traumatic Stress Symptoms Exposure Screener and Reaction Index Survey</li> </ul>	<ul style="list-style-type: none"> <li>• Mental health scores had greater improvements in the intervention arm compared to the standard-of-care (SOC) arm</li> <li>• Change in PHQ-9 score -0.60 (95% CI - 2.67, 1.47)</li> <li>• Change in SDQ Total Difficulties Score 0.88 (95% CI -3.22, 1.47)</li> <li>• Change in UCLA Trauma Score -0.03 (95% CI -2.38, 2.32)</li> </ul>
Ferris France et al. 2023 Country: Zimbabwe	Aim: To increase self-worth and wellbeing by reducing self-stigma among adolescents and young people living with HIV (AYPLHIV)  Study design: Quasi-experimental design  Data type: Qualitative	Zvandiri Community Adolescent Treatment Supporters (CATS) living with HIV (LHIV), trained, mentored and supported to deliver structural support groups, counselling and tailored community-based adherence support to their peers.  Age range: 18-24	Intervention: Psychotherapy  Description: The Wakakosha intervention (second delivery by peer coaches), a 10-day face-to-face intervention consisting of theory, meditation, group and individual experiences of Inquiry-Based Stress Reduction (IBSR), music reflection, sharing of insights, singing and songs, activity journaling,	None	15 CATS identified from the first delivery of the intervention were trained as peer coaches to lead the second delivery of the intervention. They attended residential face-to-face, six-day immersive Training of Trainers. They were supported by adult coaches when delivering the intervention	<ul style="list-style-type: none"> <li>• Self-confidence and self-agency</li> <li>• Sense of purpose and meaning in life</li> <li>• Self-forgiveness and forgiveness of others</li> </ul>	<ul style="list-style-type: none"> <li>• Participants gained various skills including self-confidence</li> <li>• Participants affirmed a new sense of purpose in their lives and inspired a sense of self-worth</li> <li>• Participants experienced positive changes in self-forgiveness and forgiveness of parents for passing on HIV</li> </ul>

		N=60	poem and letter writing, and podcast making  Setting: Community and online (COVID-19)				
Osborn et al. 2020  Country: Kenya	Aim: To evaluate if students in the Shamiri intervention would experience reductions in depressive and anxiety symptoms and improvements in social support, perceived control, and academic outcomes in a preliminary proof-of-concept trial.  Study design: Randomised controlled trial  Data type: Quantitative	Adolescents with depression or anxiety  Age range: 12-19  N=51	Intervention: Psychotherapy  Description: The Shamiri intervention consists of four weekly sessions that use didactic lectures, reading activities, group discussions and writing activities to explore self-growth, gratitude and values to address depression and anxiety  Setting: School	Didactic sessions on study skill strategies, group discussions and activities.	Five trained group leaders (17-21 years old) who are high school graduates and able to read in English. Training included 20 hours of session.	<ul style="list-style-type: none"> <li>• PHQ-8</li> <li>• GAD-7</li> <li>• Multidimensional Scale of Perceived Social Support (MSPSS)</li> <li>• Perceived Control Scale for Children (PCS)</li> </ul>	<p>Depressive symptoms</p> <ul style="list-style-type: none"> <li>• Intervention: Youths reporting mod-severe-to-severe depressive symptoms decreased by 21.42%</li> <li>• Control: Youths reporting mod-severe-to-severe depressive symptoms decreased by 4.35%</li> <li>• At end point, only 21.44% of adolescents in intervention qualify for intervention on merit of depressive symptoms, compared to 26.09% in the study skills</li> </ul> <p>Anxiety symptoms</p> <ul style="list-style-type: none"> <li>• Anxiety symptoms declined more rapidly from baseline to Week 4 for youth in intervention. (p=0.039, d=-.54[-.20,1.29])</li> <li>• Intervention: Youths reporting mod-to-severe anxiety symptoms decreased by 42.86%</li> <li>• Control: Youths reporting mod-to-severe anxiety symptoms decreased by 17.39%</li> <li>• At end point, only 46.43% of adolescents in intervention qualify for intervention on merit of anxiety symptoms, compared to 78.26% in the study skills</li> </ul>
Osborn et al. 2021  Country: Kenya	Aim: To assess whether Shamiri intervention can alleviate depression and anxiety symptoms in symptomatic Kenyan adolescents  Study design: Randomised controlled trial  Data type: Quantitative	Adolescents with elevated symptoms on standardized depression or anxiety measures  Age range: 13-18 years Mean age: 15.4  N=413	Intervention: Psychotherapy  Description: The Shamiri intervention consists of four weekly sessions that use didactic lectures, reading activities, group discussions and writing activities to explore self-growth, gratitude and values to address depression and anxiety  Setting: School	Peer-led study skills session to teach skills on note-taking, study strategies, time management, study cycle.	High school graduates fluent in English and Kiswahili 18-26 years old who underwent 10 hours of training and weekly supervision.	<ul style="list-style-type: none"> <li>• PHQ-8</li> <li>• GAD-7</li> </ul>	<p>Depression</p> <ul style="list-style-type: none"> <li>• 2-week follow-up: non-significant</li> <li>• End-point: Youths in Shamiri experienced greater declines in depression symptoms from baseline to end point than control group youths (Cohen d = 0.35 [95% CI, 0.09-0.60])</li> </ul> <p>Anxiety</p> <ul style="list-style-type: none"> <li>• 2-week: Symptoms reduced significantly more for youths in Shamiri than in control</li> <li>• 7-month: significantly lower</li> <li>• Anxiety symptoms at 7-month follow-up for the Shamiri than study skills groups (imputed values model: B = 1.78 [95% CI, 0.53-3.03]; t = 2.8; df = 25.54; P = .01; unimputed values model: B = 2.25 [95% CI, 1.08-3.4]; t = 3.8; df = 345.25; P &lt; .001)</li> </ul>

							<ul style="list-style-type: none"> <li>End-point: Youths in Shamiri experienced greater declines in anxiety symptoms from baseline to end point than youths in the control group per the model using unimputed values (Cohen <math>d = 0.37</math> [95% CI, 0.11-0.63])</li> </ul>
Osborn et al., 2023  Country: Kenya	<p>Aim: To evaluate the effectiveness of Pre-Texts arts-literacy intervention for adolescent depression and anxiety in Kenyan high school students</p> <p>Study type: Randomized Controlled Trial</p> <p>Data type: Quantitative</p>	<p>Students in Grades 9-11 from two community-run schools</p> <p>Age range: 12-19 Mean age: 16.36</p> <p>N=235 (intervention = 106 and control = 129)</p>	<p>Intervention: Psychotherapy</p> <p>Description: An afterschool Pre-Texts art literacy intervention involving group (5-6 youth) meetings of 1 hour over a one-week period for a total of five meetings. Literary, technical, scientific text extracts are provided and participants are invited to use the text as inspiration to understand and engage with themes and messages, thereby facilitating psychological change. This is followed by reflective discussions.</p> <p>Setting: School</p>	Study skills control group involving notetaking, time management, effective reading strategies.	Trained youth facilitators with a high school diploma and from around the Nairobi area.	<ul style="list-style-type: none"> <li>PHQ-8</li> <li>GAD-7</li> </ul>	<ul style="list-style-type: none"> <li>Non-significant effects for time, intervention condition and covariates age and sex</li> <li>Significant Time X Condition interaction suggests that youth who receive Pre-Text intervention experienced greater reductions in depressive symptoms from baseline to 1-month follow up compared to those in the control group. (<math>d = 0.52</math>, 95% CI [0.19, 0.84])</li> <li>Significant Time and Time X Condition effect at 1 month follow up that those participating in the intervention experienced greater reductions in anxiety from baseline to 1-month follow up compared to control-group youth (<math>d = 0.51</math>, 95% CI [0.20, 0.81])</li> <li>Adolescents who received Pre-Texts intervention experienced larger declines in depression symptoms from baseline to 1-month follow-up than control group youths (<math>d = 1.10</math>, 95% CI [0.46, 1.75])</li> <li>Youth who received Pre-Texts generally experienced larger declines in anxiety symptoms from baseline to 1-month follow-up than control group youths (<math>d = 0.54</math>, 95% CI [-0.07, 1.45])</li> </ul>
Simms et al. 2022  Country: Zimbabwe	<p>Aim: To evaluate if enhancing the counselling skills of CATS to provide problem-solving therapy (PST) reduces virological non suppression and improves mental health among adolescents living with HIV in Zimbabwe, compared with standard Zvandiri care</p>	<p>Adolescents living with HIV</p> <p>Age range: 10-19</p> <p>N=842</p>	<p>Intervention: Psychotherapy</p> <p>Description: Zvandiri-Problem-solving therapy (Zvandiri-PST) which consists of standard Zvandiri program (HIV care, counselling and home visits) and PST (a cognitive behavioural approach for problem solving)</p> <p>Setting: Health clinic</p>	Zvandiri standard care consisting of HIV care following Ministry of Health and Child Care guidelines, counselling and home visits by trained CATS, monthly support groups and weekly text messages	Community Adolescent Treatment Supporters (CATS) who are 18-24 years old living with HIV who are trained and mentored to provide peer counseling and support	<ul style="list-style-type: none"> <li>Shona Symptom Questionnaire (SSQ)</li> <li>PHQ-9</li> </ul>	<p>Intervention effect on prevalence and severity of common mental health outcomes</p> <ul style="list-style-type: none"> <li>SSQ <math>\geq 8</math>: 2.4% versus 10.3% (; AOR = 0.19; 95% CI 0.08, 0.46; <math>p &lt; 0.001</math>; AMD = -1.14; 95% CI -1.80, -0.49; <math>p = 0.001</math>)</li> <li>PHQ-9 <math>\geq 10</math>: 2.9% versus 8.8%; (AOR = 0.32; 95% CI 0.14, 0.78; <math>p = 0.01</math>; AMD = -1.14; 95% CI -2.01, -0.27; <math>p = 0.01</math>)</li> </ul>

	Study design: Cluster-randomised trial  Data type: Quantitative						
Venturo-Conerly et al., 2022  Country: Kenya	Aim: To test key, short term outcomes of a universal, classroom-based, single session version of each component of Shamiri intervention (i.e. growth, gratitude, and value affirmation) against an active control intervention.  Study design: Cluster Randomized Trial  Data type: Quantitative	Students from two sub-county (lowest academic ranking) public boarding high schools in Kiambu Country, Kenya, one an all-girls and one an all-boys school  N=895  Mean age: 16.2 (all-girls school), 15.86 (all-boys school)	Intervention: Psychotherapy  Description: A single 1-hour session version of the Shamiri intervention (Osborn et al., 2020) testing each component (i.e. growth, gratitude, value affirmation) separately  Setting: School	Study skills control involving discussing helpful study strategies and implementation.	Lay-providers who were recent Kenyan high school graduates	<ul style="list-style-type: none"> <li>GAD-7</li> <li>PHQ-8</li> </ul>	<ul style="list-style-type: none"> <li>Value affirmation intervention reduced anxiety symptoms in the universal sample</li> <li>Value affirmation (<math>B = -2.22, p &lt; .01</math>; Cohen's <math>d = 0.49</math> [0.09-0.89]) and growth mindset (<math>B = -1.78, p &lt; .05</math>; Cohen's <math>d = 0.39</math> [0.01-0.76]) interventions reduced anxiety in sub-sample endorsing moderate-to-severe symptoms at baseline</li> <li>Adolescents in all conditions including control experienced decreases in self-reported depression symptoms from baseline to 2-week follow-up</li> </ul>
Venturo-Conerly et al., 2024  Country: Kenya	Aim: To provide a more rigorous, long-term, and adequately powered examination of the Shamiri intervention, involving each intervention component, all components combined, and the study-skills condition.  Study design: Randomized Controlled Trial  Data type: Quantitative	Students from four high-schools in Kenya  N=1,252  Age range: 12-21 Mean age: 16.25	Intervention: Psychotherapy  Description: The Shamiri intervention consisting of all components (growth mindset, gratitude, and values affirmation) were tested against single-component sessions. Each intervention was tested against an active control group.  Setting: School	Study skills control involving discussing helpful study strategies and implementation	Lay-providers who were recent Kenyan high school graduates aged 18-22	<ul style="list-style-type: none"> <li>GAD-7</li> <li>PHQ-8</li> <li>Short-Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)</li> </ul>	<p>Within the main sample:</p> <ul style="list-style-type: none"> <li>Anxiety scores significantly improved on average compared to baseline at two-week midpoint (<math>B=-0.847</math>; [95%CI -1.57 -0.13]; <math>p.adj&lt;0.001</math>), four-week endpoint (<math>B=-2.948</math>; [95%CI -3.60 -2.30]; <math>p.adj&lt;0.001</math>), one-month follow-up (<math>B=-1.587</math>; [95%CI -2.55 -0.63]; <math>p.adj&lt;0.001</math>), three-month follow-up (<math>B=-2.374</math>; [95%CI -2.99 -1.76]; <math>p.adj&lt;0.001</math>), and eight-month follow-up (<math>B=-1.917</math>; [95%CI -2.59 -1.25]; <math>p.adj&lt;0.001</math>).</li> <li>Depression scores were significantly improved in full sample compared to baseline at two-week midpoint (<math>B=-0.796</math>; [95%CI -1.67 0.08]; <math>p.adj=0.011</math>), four-week endpoint (<math>B=-3.126</math>; [95%CI -3.79 -2.46]; <math>p.adj&lt;0.001</math>), one-month follow-up (<math>B=-2.382</math>; [95%CI -3.53 -1.23]; <math>p.adj&lt;0.001</math>), three-month follow-up (<math>B=-2.521</math>; [95%CI -3.42 -1.62]; <math>p.adj&lt;0.001</math>),</li> </ul>

							<p>and eight-month follow-up (<math>B=-2.237</math>; <math>[95\%CI -3.19 -1.29]</math>; <math>p.adj&lt;0.001</math>).</p> <ul style="list-style-type: none"> <li>Well-being scores were significantly improved than baseline at two-week midpoint (<math>B=1.73</math>; <math>[95\%CI 0.76 2.66]</math>; <math>p.adj&lt;0.001</math>), four-week endpoint (<math>B=3.44</math>; <math>[95\%CI 2.27 4.60]</math>; <math>p.adj&lt;0.001</math>), one-month follow-up (<math>B=2.21</math>; <math>[95\%CI -0.32 4.75]</math>; <math>p.adj=0.02</math>), three-month follow-up (<math>B=1.78</math>; <math>[95\%CI 0.09 3.47]</math>; <math>p.adj=0.004</math>), and eight-month follow-up (<math>B=1.59</math>; <math>[95\%CI 0.35 2.84]</math>; <math>p.adj&lt;0.001</math>).</li> <li>There were no significant differences between conditions on measures of depression, anxiety, or wellbeing.</li> </ul> <p>Within the clinical sub-sample:</p> <ul style="list-style-type: none"> <li>Anxiety scores significantly improved compared to baseline at two-week midpoint (<math>B=-4.00</math>; <math>[95\%CI -5.18 -2.82]</math>; <math>p.adj&lt;0.001</math>), four-week endpoint (<math>B=-7.13</math>; <math>[95\%CI -8.13 -6.14]</math>; <math>p.adj&lt;0.001</math>), one-month follow-up (<math>B=-6.51</math>; <math>[95\%CI -8.02 -4.99]</math>; <math>p.adj&lt;0.001</math>), three-month follow-up (<math>B=-6.26</math>; <math>[95\%CI -7.54 -4.99]</math>; <math>p.adj&lt;0.001</math>), and eight-month follow-up (<math>B=-6.10</math>; <math>[95\%CI -7.25 -4.95]</math>; <math>p.adj&lt;0.001</math>).</li> <li>Depression scores were significantly improved in full sample compared to baseline at two-week midpoint (<math>B=-2.89</math>; <math>[95\%CI -4.01 -1.77]</math>; <math>p.adj&lt;0.001</math>), four-week endpoint (<math>B=-6.60</math>; <math>[95\%CI -7.54 -5.66]</math>; <math>p.adj&lt;0.001</math>), one-month follow-up (<math>B=-6.34</math>; <math>[95\%CI -7.57 -5.11]</math>; <math>p.adj&lt;0.001</math>), three-month follow-up (<math>B=-5.45</math>; <math>[95\%CI -6.75 -4.14]</math>; <math>p.adj&lt;0.001</math>), and eight-month follow-up (<math>B=-5.29</math>; <math>[95\%CI -6.59 -3.99]</math>; <math>p.adj&lt;0.001</math>).</li> <li>Symptoms of depression and anxiety showed no significant differences across five groups.</li> <li>Wellbeing scores significantly improved at two-week midpoint than at baseline (<math>B=2.51</math>; <math>[95\%CI 1.39 3.64]</math>; <math>p.adj&lt;0.001</math>), 4-week endpoint (<math>B=5.02</math>; <math>[95\%CI 3.02 7.02]</math>; <math>p.adj&lt;0.001</math>), 1-month follow-up (<math>B=4.41</math>; <math>[95\%CI 3.12 5.69]</math>; <math>p.adj&lt;0.001</math>),</li> </ul>
--	--	--	--	--	--	--	---



							three-month follow-up ( $B=3.38$ ; [95%CI 1.97 4.80]; $p.adj<0.001$ ), and eight-month follow-up ( $B=3.19$ ; [95%CI 1.87 4.52]; $p.adj<0.001$ )
PEER EDUCATION AND PSYCHOEDUCATION							
Balaji et al. 2011 Country: India	Aim: To assess the acceptability, feasibility, and potential effectiveness of the pilot project Yuva Mitr in improving a range of priority health outcomes for youths 16–24 in urban and rural communities in Goa  Study design: Randomized controlled trial  Data type: Quantitative	Youth living in urban communities in the wards of Margao and rural communities from the catchment area of Balli Primary Health Centre  Age range: 16-24 Mean age: 19  N=3663 (baseline) N=3562 (follow-up)	Intervention: Peer education  Description: A 12-month intervention comprised of institution-based and community peer education involving group sessions and street plays, a teacher training program and dissemination of health information materials  Setting: Community and school	Not specified	Selected based on a pre-determined criteria (non-specified), trained by psychologists and social workers, and supported by community advisory board trained teachers.	<ul style="list-style-type: none"> <li>General Health Questionnaire (GHQ-12)</li> </ul>	<p><b>Rural:</b></p> <ul style="list-style-type: none"> <li>Probable depression decreased in the intervention arm by 60.1%, where it increased by 1.1% in the comparison arm (<math>p &lt; 0.001</math>).</li> <li>Probable depression odds ratio 0.33, 95% CI 0.23-0.48</li> <li>Community peer education was feasible and acceptable</li> </ul> <p><b>Urban:</b></p> <ul style="list-style-type: none"> <li>Suicidal behaviour decreased by 65.1% in the intervention arm compared to a decrease of 11.4% in the comparison arm (<math>p=0.02</math>)</li> <li>Suicidal behaviour odds ratio 0.38 95% CI 0.17–0.84</li> <li>Probable depression decreased by 38.8% in the intervention arm compared to a decrease of 2.1% in comparison (<math>p=0.001</math>)</li> <li>Probable depression odds ratio 0.57 95% CI 0.41–0.79</li> <li>Significant increase in knowledge levels for the topic on mental health</li> <li>Peer education in educational institutions showed acceptability but limited feasibility</li> </ul>
Im et al. 2018 Country: Kenya	Aim: To explore the effect of a trauma-informed psychoeducation (TIPE) intervention on both mental health and psychosocial domains among Somali refugee youth affected by trauma  Study design: Quasi-experimental design	Somali youth refugees living in an urban business district affected by multiple refugee traumas  Mean age: 20  N=141	Intervention: Psychoeducation  Description: 12 sessions of Trauma-informed Psychoeducation (TIPE) over three months that include 1) psychoeducational modules to promote refugee resilience, peace education, conflict resolution, problem-solving methods, 2) Education on the impacts of trauma on the body, mind, social	None	25 youth leaders Week long training of trainer (TOT) training 10 youth leaders paired with five community health counsellors	<ul style="list-style-type: none"> <li>PTSD Check List – Civilian Version (PCL-C)</li> </ul>	<ul style="list-style-type: none"> <li>TIPE intervention had positive impacts on PTSD symptoms and psychosocial factors:</li> <li>Youths with no/low baseline PTSD symptoms had their post-TIPE symptom score increase from 27.42–34.48 (<math>t=-4.476</math> <math>p=0.000</math>)</li> <li>Youths with high PTSD score reported lower PTSD symptoms post-TIPE from 50.09–31.93 (<math>t=8.188</math> <math>p=0.000</math>)</li> </ul>



	Data type: Quantitative		relationships, spirituality, and 3) psychosocial competencies such as emotional coping, problem solving, community and support systems and conflict management skills  Setting: Community				
Kermode et al. 2021  Country: India	Aim: To implement and evaluate an intervention to promote social inclusion for young people affected by mental illness  Study design: Quasi-experimental design  Data type: Quantitative	Young people affected by mental illness, including those experiencing a mental health problem and those caring for a family member with a mental health problem  Mean age: 18.9  N=142	Intervention: Psychoeducation  Description: A 4–6-month intervention consisting of the formation of 11 Youth Wellness Groups (peer-facilitated, participatory groups of young people divided by gender) guided by a series of interactive modules adapted from the <i>Nae Disha</i> curriculum.  Setting: Community	None	Eight peer facilitators affected by mental illness, with at least Class 12 education, ability to travel to intervention sites and communication skills. They were trained by the Burans Community Mental Health Project Team.  (Qualitative outcomes of the same study has been described in Mathias et al., 2019)	<ul style="list-style-type: none"> <li>• GHQ-12</li> <li>• SDQ</li> </ul>	<ul style="list-style-type: none"> <li>• GHQ improved from 6.6 to 2.2 (p&lt;0.001)</li> <li>• SDQ improved from 16.1 to 11.8 (p&lt;0.001)</li> </ul>
Mathias et al. 2018  Country: India	Aim: To evaluate the effectiveness of Nae Disha intervention to reduce anxiety and depression, promote attitudes of gender equality, self-efficacy and resilience among highly disadvantaged young women outside of a school setting in India  Study design: Quasi-experimental repeated measures design	Young women not attending school  Age range: 12-24 Mean age: 16.7  N=106	Intervention: Psychoeducation  Description: Nae Disha, a 15-week intervention to facilitate health promotion, development of psycho-social assets to promote youth citizenship and positive youth development. Modules include exploring self-identity and esteem, identifying and managing emotions, mental health communication skills, relationship skills and forgiveness, self-care and drawing boundaries	None	Local young women 20-30 years old expressing enthusiasm to work in youth resilience and have completed 12 <sup>th</sup> Class.  Had five days of training and two days of refresher training.	<ul style="list-style-type: none"> <li>• Connor-Davidson Resilience Scale (CD-RISC)</li> <li>• Schwarzer's General Self-Efficacy Scale</li> <li>• PHQ-9</li> <li>• GAD-7</li> </ul>	<ul style="list-style-type: none"> <li>• Statistically significant improvement between pre- and post- intervention in all scales for self-efficacy, resilience, anxiety, depression and gender attitudes</li> <li>• Improvement in mental health and gender attitudes at follow up, but not in emotional resilience and self-efficacy.</li> </ul>

	Data type: Quantitative		Setting: Homes of community members				
Mathias et al., 2019  Country: India	Aim: To assess the impact of a peer-led, community-based, participatory group intervention on social inclusion and mental health among young people affected by psycho-social disability in Dehradun district.  Study type: Quasi-experimental design  Data type: Qualitative	Young people affected by psycho-social disability (PSD) in four communities in Uttarakhand, India.  Age range: 12-24  N=142	Intervention: Psychoeducation  Description: The Nae Disha curriculum that builds on youth development and mental health promotion approaches using an interactive, participatory facilitation style of 17 learning modules (i.e. accepting differences, managing emotions, communicating confidently etc.). It also includes participation in community activities, access mental health services and visit a de-addiction centre.  Setting: Community	None	Peer facilitators selected from the four target communities that were young people aged under 30 years, with personal experience of mental ill-health and who had completed 12 <sup>th</sup> class in high school  (Quantitative outcomes of the same study have been reported in Kermodé et al., 2021)	<ul style="list-style-type: none"> <li>• Intermediate and primary outcomes of the intervention</li> <li>• Mechanisms through which they were achieved</li> </ul>	<p>Experienced by both genders</p> <ul style="list-style-type: none"> <li>• Formation of new peer friendship networks</li> <li>• Increased self-efficacy</li> <li>• Improved mental health</li> <li>• Increased community participation</li> </ul> <p>Experienced by young women:</p> <ul style="list-style-type: none"> <li>• Increased freedom of movement</li> <li>• Greater confidence in communicating</li> </ul> <p>Experienced by young men:</p> <ul style="list-style-type: none"> <li>• Changes in community perceptions of them</li> </ul>
Merrill et al., 2023  Country: Zambia	Aim: To explore youths' experiences with Project YES! to strengthen the understanding of the intervention's effectiveness and implementation, while enhancing the literature on peer-centered approaches to improving HIV outcomes among youth living with HIV  Study design: Randomized Controlled Trial  Data type: Qualitative	Youth living with HIV  Age range: 15-24  N=276	Intervention: Peer education  Description: Six-month peer-mentoring program, including an orientation meeting, and monthly individual and monthly group meetings with a youth peer mentor. The goal is to support youth to successfully adhere to ART and decreased internalized stigma to achieve viral suppression.  Setting: HIV clinics	Standard of care, including regular clinic visits and option of joining monthly youth group meetings.	Youth Peer Mentors (YPM), aged 21-26 years old selected by healthcare providers as successfully managing their HIV. Completed a two-week training and underwent one month of practice meetings with youth before the intervention launch.	<ul style="list-style-type: none"> <li>• Overcoming shame</li> <li>• Self-worth</li> <li>• Community building</li> </ul>	<ul style="list-style-type: none"> <li>• Participants overcame feelings of shame and developed greater self-worth.</li> <li>• Participants reported how community building could alleviate feelings of isolation</li> </ul>

Mohamadi et al. 2021 Country: Iran	Aim: To compare the methods of motivational interviewing led by a specialist and peer-to-peer education in promoting the knowledge and performance about puberty health and mental health in adolescent girls  Study design: Cluster randomized controlled trial  Data type: Quantitative	Eighth grade adolescent female students  Age range: 13-15 Mean age: 14.44  N=334	Intervention: Peer education  Description: Peer educators led one formal training on puberty and mental health to other students, followed by the informal passage of information to peers in groups of 5-6 students within one month  Setting: School	Two training sessions on puberty health conducted by the researcher  Comparator: Group counseling involving motivational interviewing presented by a master in consultation in midwifery during five sessions of 60-90 mins.	Active volunteers who scored higher on the puberty health questionnaire prior to the start of the study, responsible for transmitting information to 5-6 other students.	• Persian Standard Symptom Checklist-25 (SCL-25)	<ul style="list-style-type: none"> <li>• Immediately and 1 month after intervention, the Intervention group scored significantly higher in knowledge and performance, and improved in mental health than the control group</li> <li>• Scores in knowledge, performance, and mental health were better in the peer group (intervention 2) than intervention 1 and control group</li> </ul>
Yuksel et al. 2019 Country: Turkey	Aim: To determine the effect of mentoring program on adjustment to university and ways of coping with stress in nursing students  Study design: Quasi-experimental study  Data type: Quantitative	First-year undergraduate nursing students  Mean age:  N=91	Intervention: Peer education  Description: Eight weekly sessions of peer mentoring program including acquaintance and group awareness, life in Aksaray and its features, communication skills, techniques that facilitate communication, interpersonal communication, stress and coping  Setting: University	None	Ten fourth year students with 10 hours of training over five days	• Ways of Coping Inventory (WCI)	<ul style="list-style-type: none"> <li>• Posttest mean scores of active ways of coping with stress (Optimistic Approach and Seeking Social Support Approach) of the experimental group were statistically higher than that of the control group.</li> </ul>
<b>PEER SUPPORT</b>							
Duby et al. 2021 Country: South Africa	Aim: To explore the perceived benefits of participation in peer-group clubs to better understand how combination interventions can incorporate social	Adolescent girls and young women (AGYW) in and out of school  Age range: 15-24  N=185	Intervention: Peer-support  Description: Peer-group clubs (The Keeping Girls in School Program and Rise Young Women's Clubs)	None	Trained peer-educators of similar age	<ul style="list-style-type: none"> <li>• Self-esteem</li> <li>• Empowerment, self-worth, and self-respect</li> <li>• Well-being and coping</li> </ul>	Peer-group clubs: <ul style="list-style-type: none"> <li>• Positively affected their well-being through building self-esteem and self-confidence</li> <li>• Allowed AGYW to feel empowered with improved self-worth and emotional strength</li> <li>• Improved mental health and wellness by teaching how to communicate feelings and emotions</li> </ul>

	<p>support and mental health components that ensure their relevance and effectiveness</p> <p>Study design: Quasi-experimental design</p> <p>Data type: Qualitative</p>		<p>designed to build self-esteem, confidence, life skills, provide supportive peer networks, and offer a platform for group discussions on sexual and reproductive health rights and gender equality</p> <p>Setting: Community clubs and schools</p>				<ul style="list-style-type: none"> <li>Peer facilitation was regarded as beneficial to AGYW in providing SRH, emotional support and counselling</li> </ul>
<p>Harrison et al., 2023</p> <p>Country: South Africa</p>	<p>Aim: A pilot study to examine the acceptability, feasibility and preliminary impact of a peer support group for youth living with a range of chronic illnesses</p> <p>Study type: Quasi-experimental design</p> <p>Data type: Mixed methods</p>	<p>Adolescents living with a range of chronic illness (i.e. HIV, renal disease, psychiatric conditions, diabetes, etc.) and receiving care at Groote Schuur Hospital (GSH)</p> <p>Age range: 13-24 Mean age: 18.74</p> <p>N=58 (intervention = 20 and control = 38)</p>	<p>Intervention: Peer-support</p> <p>Description: The Better Together Programme, which helps adolescents with chronic conditions build social networks that enhance psychosocial support, develop a sense of belonging with peers, create a space where adolescents can share their experiences and build empathy.</p> <p>Setting: Hospital</p>	Non-peer group	Peer mentors who are also living with a chronic condition	<p>Quantitative:</p> <ul style="list-style-type: none"> <li>CD-RISC 10</li> <li>Child Attitude Toward Illness Scale (CATIS)</li> <li>Beck Youth Inventories Second Edition (BYI-II)</li> </ul> <p>Qualitative:</p> <ul style="list-style-type: none"> <li>Support and acceptance in support group</li> <li>Benefits of participation in peer support group</li> </ul>	<p>Quantitative:</p> <ul style="list-style-type: none"> <li>Those who attended at least five peer group sessions had higher self-reported individual-level resilience (<math>p=0.004</math>), positive attitude towards their chronic illness (<math>p&lt;0.001</math>), stronger self-concept (<math>p=0.039</math>), lower depressive symptoms (<math>p&lt;0.10</math>)</li> <li>Average total or T-scores on Beck Anxiety Inventory for Youth, Beck Anger Inventory for Youth, and Beck Disruptive Inventory for Youth did not statistically significantly differ between peer group and non-peer group patients.</li> <li>Statistically significant association between mental health improvement as a function of peer group participation overall (Wilks' Lambda = 0.7349, <math>F(8,49) = 2.21</math>, <math>p = 0.043</math>) and for individual domains of resilience, attitudes toward illness, chronic disease stigma, self-concept, depression</li> <li>Attending more than 5 group sessions was positively associated with a reduced odds of screening positive for depression or anxiety</li> </ul> <p>Qualitative</p> <ul style="list-style-type: none"> <li>An eye opening and powerful experience for most young people</li> <li>Finding support and acceptance in the support group</li> <li>Social support</li> </ul>
<p>Tinago et al., 2023</p> <p>Country: Zimbabwe</p>	<p>Aim: To test the effectiveness of a community-based peer support intervention to</p>	<p>Adolescent mothers who were pregnant and/or had a child or children who</p>	<p>Intervention: Peer-support</p> <p>Description: Peer support groups that met</p>	A community similarly low-income and high-density in Harare.	12 peer educators co-facilitated the peer support groups with Community Health Workers	<ul style="list-style-type: none"> <li>PHQ-9</li> <li>MSPSS</li> <li>SSQ</li> <li>Peer and Significant</li> </ul>	<ul style="list-style-type: none"> <li>PHQ-9 and SSQ had greater improvements in the intervention arm than control arm by 5.01 (<math>p&lt;0.001</math>) and 3.10 (<math>p&lt;0.001</math>) points</li> <li>Probability of moderate to severe depression decreased in intervention arm from 0.408 to</li> </ul>

	<p>mitigate social isolation and stigma of adolescent motherhood</p> <p>Study type: Quasi-experimental design</p> <p>Data type: Quantitative</p>	<p>resided in the two selected communities in Harare</p> <p>Age range: 15-18 years</p> <p>N=104 (intervention), 79 (control)</p>	<p>in-person twice a month and completed 12 total 75-min peer-group sessions. WhatsApp was used to schedule meetings, answer queries or further discuss peer support topics. Average of 12 participants per group.</p> <p>Setting: Community</p>			<p>Adult Support (PSAS)</p>	<p>0.231 (p=0.005), and increased in control arm 0.267 to 0.333. Participants were four times less likely to become moderately-to-severely depressed than were control participants</p> <ul style="list-style-type: none"> <li>• Each of the four scores of MSPSS (family, friends, significant other, and total) had greater improvements in the intervention arm than control by 0.691 (p=0.003), 1.03 (p&lt;0.001), 1.61 (p&lt;0.001) and 1.11 (p&gt;0.001) points respectively</li> <li>• Overall score of PSAS survey had greater improvement in intervention arm than control arm by 0.508 points (p&lt;0.001)</li> </ul>
--	--	--	--	--	--	-----------------------------	---

849  
850  
851  
852

853 Table 2: Description of peer leaders

Author & Year	Characteristics of peer leaders	Number of peer leaders	Recruitment process, training, supervision, support, remuneration, safe-guarding	Responsibilities and tasks
<b>PSYCHOTHERAPY AND COUNSELLING</b>				
Dow et al. 2020	Young adults (23-30 years old) with background of either living with HIV and/ or having prior experience with mental health research.	N=6	<p>Recruitment: Not specified</p> <p>Training: On-site intensive two-week training with the principal investigator and a U.S. based clinical psychologist.</p> <p>Supervision, support, safeguarding: Group leaders continued to have weekly practice under supervision one day before the intervention group sessions. This is followed by a review of session notes and fidelity checklists. *<sup>1</sup></p> <p>Remuneration: Not specified</p>	Group leaders were sex-concordant with participants in their group. Two group leaders led each session, and the third group leader would be responsible for keeping detailed notes of each youth and ensured protocol delivery using a fidelity checklist.
Ferris France et al. 2023	Community Adolescent Treatment Supporters (CATS) are 18-24 year olds LHIV.	N=15	<p>Recruitment: 15 CATS were identified out of a group of 30 CATS initially recruited to receive the intervention delivered by adult coaches. Selection process not specified.</p> <p>Training: A residential face-to-face, six-day immersive Training of Trainers, led by local adult coaches LHIV trained in IBSR.</p> <p>Supervision, support, safeguarding: CATS were supported by the local adult coaches at each intervention session. Each day that training and/or intervention were evaluated, feedback was used real-time to adapt the curriculum. Investigators assessed and graded group leader competence and intervention fidelity</p> <p>Remuneration: Not specified</p>	CATS peer coaches delivered the second round of the intervention to 30 CATS participants.
Osborn et al. 2020	Group leaders 17-21 years old who are high school graduates and required to read in English. None were formally certified in counseling or related fields.	N=5	<p>Recruitment: Group leaders were recruited from local universities and high-school graduate forums with a written application and interview process assessing past experiences, interest in the project, familiarity with mental health issues, and interpersonal facilitation skills. Five out of 11 applicants were selected.</p> <p>Training: 20 hours of training spanning 5 days and covering the content of both Shamiri and study skills group. Training was led by the first three authors involving general communication and</p>	<p>Group leaders were instructed to strictly follow the protocol manual and not use content from the other condition during sessions.</p> <p>All group leaders led their groups individually. Three were assigned to the Shamiri intervention, two to the study skills control.</p>

			<p>leadership skills, handling conflicts and referring students to appropriate school officials. This is followed by didactic training in the specific content of the weekly intervention sessions. The group leaders were then asked to role-play delivering the intervention content, and they received feedback from trainers and fellow group leaders.</p> <p>Supervision, support, safeguarding: Not specified</p> <p>Remuneration: Not specified</p>	
Osborn et al. 2021	Group leaders were high school graduates fluent in English and Kiswahili 18-26 years old.	N=13 (61.54% female)	<p>Recruitment: Selection via a semistructured interview that gauged past experiences and interpersonal skills</p> <p>Training: 10 hours of training by the study team covering: Shamiri and study skills intervention content, counseling techniques, role play, control content, and safety protocols.</p> <p>Supervision, support, safe-guarding: Group leaders had weekly supervision phone calls with study staff to ask questions, receive feedback, and bring up any concerns. Study staff are present during data collection and intervention delivery for support. In the event of serious mental health concern, group leaders are trained to call their supervisor.*2</p> <p>Remuneration: Not specified</p>	All leaders led both Shamiri and study skills content
Osborn et al., 2023	Youth facilitators 18-22 years old from the Nairobi area and have a high school diploma.	Not specified	<p>Recruitment: Semi-structured interviews were conducted, and past experiences, interests, interpersonal skills were assessed, following a validated protocol for youth lay-providers widely used in Kenya (Venturo-Conerly et al. 2022)</p> <p>Training: They received 20 hours of training covering the Pre-Texts and study skills content, led by the first author. Topics covered include general communication and group facilitation, referring students in need to proper school resources. The recruitment and training followed validated protocol for youth lay providers widely used in Kenya.</p> <p>Supervision, support, safe-guarding: Weekly supervision meetings were provided to review sessions that would take place in the coming week, and address any concerns faced in the past week. A member of the study team was assigned as support</p>	Facilitators were randomly assigned to groups in each school, with each facilitator leading both Pre-Texts and study skills groups. They were tasked with referring students in need to proper school resources. They also facilitated the use of challenging texts as raw material for artmaking.

			<p>to provide materials, give time warnings and available in the general area if any concerns should arise. WhatsApp was used for any important reminders.*<sup>3</sup></p> <p>Remuneration: A stipend of \$150, and full reimbursement for transportation.*<sup>4</sup></p>	
Simms et al. 2022	Community Adolescent Treatment Supporters (CATS) who are 18-24 years old living with HIV who are trained and mentored to provide peer counseling and support.	N=60* <sup>5</sup>	<p>Recruitment: CATS are selected based on readiness and capacity to provide peer counselling</p> <p>Training: A three-week programme utilizing role play, pre- and post-tests, group sessions and one-on-one sessions for those with difficulty. They are trained on the use of PST with ALHIV and how to make referrals to mental health services.*<sup>5</sup></p> <p>Supervision, support, safe-guarding: There was weekly nurse-led group supervision and monthly supervision from a mental health specialist.*<sup>5</sup> CATS in Zvandiri-PST arm met a Zvandiri mentor at least once every two weeks to review individual cases</p> <p>Remuneration: Not specified</p>	Tasks include helping participants choose a manageable, relevant problem, establish a goal, and brainstorm solutions. Afterwards, selecting a detailed solution and devising an action plan.
Venturo-Conerly et al., 2022	Lay-providers that were recent Kenyan high school graduates.	N=13	<p>Recruitment: Lay-providers were selected based on online applications and in-person interviews. They were assessed for interest, availability, conscientiousness, experience, personal characteristics, and experience indicating good leadership abilities.</p> <p>Training: Lay-providers were trained as part of Osborn et al., 2020 study (see above) in the four-session format of the Shamiri intervention, but also an additional hour-long training in how to deliver the single-session versions for this study. All lay-providers were trained in all conditions to allow for random assignment to conditions</p> <p>Supervision, support, safe-guarding: Weekly supervision meetings were provided to review sessions that would take place in the coming week, and address any concerns faced in the past week. A member of the study team was assigned as support to provide materials, give time warnings and available in the general area if any concerns should arise. WhatsApp was used for any important reminders.*<sup>6</sup></p>	<p>Different lay-providers were assigned to facilitate three intervention components: Growth Intervention, Gratitude Intervention, Value Affirmation Intervention, and Study-Skills Control. In the Growth Intervention, lay-providers explained that everyone can improve with effort, followed by participants engaging in planned activities. Finally, lay-providers presented a take-home activity where participants used skills and concepts from the session to address a personal challenge.</p> <p>In the Gratitude Intervention, lay-providers began the session by emphasizing the importance of gratitude and discussing personal examples. Participants then engaged in planned activities. Finally, lay-providers assigned a take-home activity: writing three things for which participants felt grateful every day for one week.</p> <p>In the Value Affirmation Intervention, lay-providers described how personal values contribute to shaping our lives, including decision-making and academic outcomes. Participants then engaged in planned activities. Finally, lay-providers assigned a take-home activity involving a specific values-promoting exercise planned previously.</p>



			Remuneration: A stipend of \$150, and full reimbursement for transportation.* <sup>6</sup>	
Venturo-Conerly et al., 2024	Lay-providers that were recent Kenyan high school graduates aged 18-21.	N=20	<p>Recruitment: Lay-providers were selected using semi-structured interview assessing experiences with youth, interpersonal skills, and attitudes towards mental health.</p> <p>Training: Four days of teachings on protocols, general counselling techniques, ethical guidelines for research, and risk procedures. Training included clinical risk assessment and response, sensitive to local resources, attitudes and customs, and were involved in the monitoring of adverse events that may require escalation to a higher-level doctoral psychologist.</p> <p>Supervision, support, safe-guarding: Each lay-provider was assigned a clinical supervisor with at least a bachelors-level of psychology and counselling experience, who trained them, supervised group sessions, and provided care in case of risk. Weekly supervision and daily onsite supervision were implemented.</p> <p>Remuneration: A stipend of \$150, and full reimbursement for transportation.*<sup>7</sup></p>	Each trained lay-provider facilitated a group of approximately 8-15 students. Lay-providers facilitated three interventions: (1) the Growth Intervention, which challenges the belief that personal characteristics are fixed, teaching participants that growth and improvement are possible, especially when facing challenges; (2) the Gratitude Intervention, designed to enhance feelings and expressions of gratitude to increase well-being and improve relationships; and (3) the Values Intervention, which encourages students to cultivate their personal values and intentionally plan and act in alignment with these values.
<b>PEER EDUCATION AND PSYCHOEDUCATION</b>				
Balaji et al. 2011	Not specified	<p>Rural communities: N=28 trained, 20 attended more than 75%.</p> <p>Educational institution-based components: N=4 even though 98 peer leaders trained, 75 attended more than 75%</p>	<p>Recruitment: Selected based on a pre-determine non-specified criteria</p> <p>Training: Training was led by psychologists and social workers experienced in adolescent health. Training materials were from standardised manuals. Resources guide was given for delivering the intervention.</p> <p>Supervision, support, safe-guarding: Support was provided in the form of a Community Advisory Board consisting of village council leaders and trained teachers. There were on-site supervision and weekly review meetings.</p> <p>Remuneration: moderate monetary and other incentives (certificates)</p>	Peer leaders were given a resource guide for delivering the intervention. They conducted group sessions and performed street plays.
Im et al. 2018	Community youth leaders in the Somali community.	N=10 (initially 25 trained)	Recruitment: Not specified	10 trained youth leaders were paired with five community health counsellors to perform the intervention.

			<p>Training: A weeklong TIPE training of trainer (TOT) by the project team, followed by training on facilitation and program monitoring and evaluation.</p> <p>Supervision, support, safe-guarding: Not specified</p> <p>Remuneration: Not specified</p>	
Kermode et al. 2021	Peer facilitators were individuals affected by mental illness, with at least Class 12 education, ability to travel to intervention sites and communication skills.	N=8	<p>Recruitment: From local communities (Details not specified)</p> <p>Training: Training was led by the Burans Community Mental Health Project Team. (Details not specified)</p> <p>Supervision, support, safe-guarding: Support was offered by the Burans team. (Details not specified)</p> <p>Remuneration: Not specified</p>	Two peer facilitators led each group (11 groups of ~13 participants)
Mathias et al. 2018	Group facilitators were locally recruited young women 20-30 years old expressing enthusiasm to work in youth resilience and have completed 12 <sup>th</sup> Class.	Not specified	<p>Recruitment: Not specified</p> <p>Training: Five days of training and two days of refresher training after the completion of eight modules.</p> <p>Supervision, support, safe-guarding: They were supported by a research team leader on tasks including planning, reporting, and who stepped in if a peer facilitator was unable to attend. The Nae Disha field coordinator supported all aspects of the intervention delivery and performed monitoring and support.</p> <p>Remuneration: Not specified</p>	Facilitators led in pairs with eight groups of 12-15 participants for 15 consecutive weeks.
Mathias et al., 2019	Peer facilitators were selected from the four target communities, who were young people aged under 30 years, with personal experience of mental ill-health and who had completed 12 <sup>th</sup> class in high school.	N=8	<p>Recruitment: Facilitators were selected through a process of community meetings and interviews with community leaders.</p> <p>Training: Peer facilitators were trained for five days in group facilitation, how to support young people with PSD, and in the Nae Disha curriculum. Refresher training was conducted across the five-month intervention period.</p> <p>Supervision, support, safe-guarding: There was ongoing supervision by project staff.</p> <p>Remuneration: Peer facilitators were paid. (Amount not specified)</p>	Facilitators conducted 17 interactive sessions. It included modules such as accepting differences, managing emotions, communicating confidently, protecting ourselves etc. Facilitators also encouraged participants to participate in collective activities, direct participants to additional mental health services, and visit a de-addiction centre.

Merrill et al., 2023	Youth Peer Mentors (YPM), aged 21-26 years old selected by healthcare providers as successfully managing their HIV were hired to work in the clinics.	Not specified	<p>Recruitment: Process not specified.</p> <p>Training: Completed an intensive two-week training and underwent one month of practice meetings with youth before the intervention launch.</p> <p>Supervision, support, safe-guarding: Healthcare providers (HCPs) led the orientation and caregiver meetings and were available to answer questions if outside the scope of the YPM's knowledge.</p> <p>Remuneration: YPM were paid for their work. (Amount not specified)</p>	YPM were introduced to their youth in the orientation meeting where they discuss action plans for subsequent meetings again. They have monthly individual and group meetings with youth following the Project YES! curriculum.
Mohamadi et al. 2021	Peer educators were active volunteers who scored higher on the puberty health questionnaire prior to the start of the study.	Not specified	<p>Recruitment: Based on scores on the puberty health questionnaire.</p> <p>Training: Educational content was taught to peer educators in one session.</p> <p>Supervision, support, safe-guarding: Peer-to-peer educators' relationship with researcher continued so that educators could ask questions.</p> <p>Remuneration: Not specified.</p>	Each peer educator was responsible for transmitting information to 5-6 other students in one formal session, followed by informal sessions in small groups within one month.
Yuksel et al. 2019	Mentors were fourth year nursing students with high academic achievement and effective communication skills, be loved among friends and volunteered to participate in the studies.	N=10	<p>Recruitment: Among students who volunteered, those with an academic grade point of 2.50 or higher were ranked from high to low. Faculty members were then interviewed to determine the students who had effective communication skills and who were loved by their friends.</p> <p>Training: Mentors received 10 hours of training over five days, including the features of peer counseling, communication, assistive communication techniques, and coping with stress.</p> <p>Supervision, support, safe-guarding: Researchers continued to provide guidance to the mentors throughout the eight weeks.</p> <p>Remuneration: Not specified</p>	Two mentors were assigned to each group of eight to ten mentees. The mentors applied eight weekly sessions of peer mentoring to the mentees.
<b>PEER SUPPORT</b>				
Duby et al. 2021	Trained peer-educators of similar age	Not specified	Not specified	Not specified
Harrison et al., 2023	Peer mentors who also live with a chronic condition	Not specified	<p>Recruitment: Process not specified.</p> <p>Training: Peer mentors are trained to adjust their topics to age and cognitive maturity of the group.</p>	Volunteer peer mentors are tasked with approaching patients in the Groote Schuur Hospital (GSH) waiting room and inviting them to participate in the Better Together group sessions. These group sessions are designed to help adolescents with chronic conditions

			Supervision, support, safe-guarding: Peer mentors are overseen by a supervisor (either a psychologist or social worker) at each session to provide additional support.  Remuneration: Not specified.	(including HIV, renal disease and psychiatric conditions) to (1) build social networks that enhance psychosocial support; (2) develop a sense of belonging with peers; (3) create a space where adolescents can share their experience(s) living with and managing chronic illness; and (4) build empathy among Adolescents Living with HIV (ALHIV) and other conditions.
Tinago et al., 2023	Peer educators are women who had given birth during adolescence, between the ages 19-25, with at least 7 <sup>th</sup> grade education.	N=12	Recruitment: Peer educators were recruited by project coordinator and community health workers through snowball sampling and in-person recruitment.  Training: They were trained by the project coordinator and local subject matter experts with a 3-day training session.  Supervision, support, safe-guarding: WhatsApp was used as additional support for training and implementation and a platform to communicate and plan sessions. Monthly meetings were conducted to review session plans and project progress.  Remuneration: Not specified.	Along with Community Health Workers (CHWs), peer educators co-facilitated peer support groups which discussed 12 participant identified topics: (1) introduction to the peer support groups, (2) adolescent motherhood, (3) gossip, (4) healthy relationships, (5) depression, (6) substance abuse, (7) family planning, (8) sexual health, (9) healthy parenting, (10) income generation, (11) hygiene, and (12) moving forward as an adolescent mother.
<p>*Information extracted from protocol paper:</p> <ol style="list-style-type: none"> <li>1. Dow DE, Mmbaga BT, Turner EL, Gallis JA, Tabb ZJ, Cunningham CK, et al. Building resilience: a mental health intervention for Tanzanian youth living with HIV. <i>AIDS Care</i>. 2018;30(sup4):12–20.</li> <li>2. T.L. Osborn, K.E. Venturo-Conerly, G.S. Arango, E. Roe, M. Rodriguez, R.G. Alemu, J. Gan, A.R. Wasil, B.H. Otieno, T. Rusch, D.M. Ndeti, C. Wasanga, J.L. Schleider, and J.R. Weisz, Effect of Shamiri Layperson-Provided Intervention vs Study Skills Control Intervention for Depression and Anxiety Symptoms in Adolescents in Kenya: A Randomized Clinical Trial. <i>JAMA Psychiatry</i> 78 (2021) 829-837. (Supplementary Materials)</li> <li>3. T.L. Osborn, D.M. Ndeti, P.L. Sacco, V. Mutiso, and D. Sommer, An arts-literacy intervention for adolescent depression and anxiety symptoms: outcomes of a randomised controlled trial of Pre-Texts with Kenyan adolescents. <i>EClinicalMedicine</i> 66 (2023) 102288.</li> <li>4. K. Venturo-Conerly, E. Roe, A. Wasil, T. Osborn, D. Ndeti, C. Musyimi, V. Mutiso, C. Wasanga, and J.R. Weisz, Training and supervising lay providers in Kenya: Strategies and mixed-methods outcomes☆☆☆. <i>Cognitive and Behavioral Practice</i> 29 (2022) 666-681.</li> <li>5. S. Chinoda, A. Mutsinze, V. Simms, R. Beji-Chauke, R. Verhey, J. Robinson, T. Barker, O. Mugurungi, T. Apollo, and E. Munetsi, Effectiveness of a peer-led adolescent mental health intervention on HIV virological suppression and mental health in Zimbabwe: protocol of a cluster-randomised trial. <i>Global Mental Health</i> 7 (2020) e23.</li> <li>6. K.E. Venturo-Conerly, T.L. Osborn, R. Alemu, E. Roe, M. Rodriguez, J. Gan, S. Arango, A. Wasil, C. Wasanga, and J.R. Weisz, Single-session interventions for adolescent anxiety and depression symptoms in Kenya: A cluster-randomized controlled trial. <i>Behaviour research and therapy</i> 151 (2022) 104040.</li> <li>7. K.E. Venturo-Conerly, A.R. Wasil, T.L. Osborn, E.S. Puffer, J.R. Weisz, and C.M. Wasanga, Designing Culturally and Contextually Sensitive Protocols for Suicide Risk in Global Mental Health: Lessons From Research With Adolescents in Kenya. <i>J Am Acad Child Adolesc Psychiatry</i> 61 (2022) 1074-1077.</li> </ol>				

855 Table 3: Mental health outcomes and quotes from qualitative papers

Author & Year	Qualitative outcomes	Quotes
Duby et al. 2021	<ul style="list-style-type: none"> <li>• Building self-esteem, social confidence</li> <li>• Empowerment, self-worth and self-respect</li> <li>• Improved well-being and coping through communicating emotions</li> </ul>	<ul style="list-style-type: none"> <li>• “The clubs helped my self-esteem... (participating in the clubs) really helped, a lot... for me to feel that my self-esteem is better.” AGYW 15-18 years</li> <li>• “The club helped me gain confidence” AGYW 15-18 years</li> <li>• “The Rise Club awareness has taught use to respect ourselves as women... you must respect your own body to show others that they must respect you as a woman.</li> <li>• “I was taught to open up, and now I can speak up for myself and I stop keeping quiet”</li> <li>• I used to say I prefer to stay alone with my problem, and it stresses me... but in these programmes, sharing, talking... it helped me... to share my story.</li> </ul>
Ferris France et al. 2023	<ul style="list-style-type: none"> <li>• Self-confidence and self-agency</li> <li>• Sense of purpose and meaning in life</li> <li>• Body positivity</li> <li>• Improved communication and personal/family relationships</li> <li>• Self-forgiveness and forgiveness of others</li> </ul>	<ul style="list-style-type: none"> <li>• “After the training I learnt that there is nothing I cannot do, and I can do it” Male 21 years, FGD</li> <li>• “It was only after Wakakosha when I realized that I should be proud of my body” Female 23 years, IDI</li> </ul>
Harrison et al., 2023	<ul style="list-style-type: none"> <li>• An eye-opening and powerful experience, combating feelings of isolation</li> <li>• Combating stigma and uninformed attitudes, finding support and acceptance in the support group</li> </ul>	<ul style="list-style-type: none"> <li>• “I mean, it is nice to have a group of people with the same illness, but to me I feel like it is nice to get to chat with people with different illnesses because you hear different experiences from them and even though we may think that it is different, but we have many similarities and things that we go through.” (PID 00001, Male age 20, living with renal disease)</li> <li>• “I live with this thing that cannot be cured. ...But I learned to accept it because I thought to myself, you know what? I can look at this from a different point of view. I thought about so many people who are out</li> </ul>

		there successful, who are HIV positive. Because it does not mean a death sentence when you are HIV positive. (PID 00015; Female Age 22, living with HIV.”
Mathias et al., 2019	<ul style="list-style-type: none"> <li>• Formation of new peer friendship networks</li> <li>• Increased self-efficacy</li> <li>• Improved mental health</li> <li>• Greater confidence in communicating</li> </ul>	<ul style="list-style-type: none"> <li>• “At the group we played with balloons and likewise, we now play balloon games with the children at our home. When three or four of us got together we laughed and then we felt happy.”</li> <li>• “There was one girl who used to be very quiet and not speak but through coming to this group she now speaks confidently...This change happened in her because she could share easily with us about her problems, and because of playing games and doing role plays.”</li> </ul>
Merrill et al., 2023	<ul style="list-style-type: none"> <li>• Overcoming shame and developing greater feelings of self-worth</li> <li>• Community building</li> </ul>	<ul style="list-style-type: none"> <li>• “Sometimes even on our own you have a certain stigma. You feel embarrassed. You don’t feel free in your own life. But for me, [the program] has taught me a lot. I can even stand in public and talk about my status with confidence.” Female 24 years old</li> <li>• “Project YES! has actually opened my eyes to see we are not alone. I am not alone.” Male 21 years</li> </ul>

856

857

858 Table 4: The mechanisms that make peer-led interventions effective and their  
 859 implementation challenges

Author & Year	Benefits	Challenges
Balaji et al. 2011	Peer leaders report increase in self-confidence and leadership ability. There was also report of greater anger control, communication skills, reduced smoking and greater comfort in discussing sexual health issues.	Non-adherence of peer leaders due to school, house-work, other commitments, inconvenient timings, duration and locations. Integration of peer education into existing structures to ensure long term sustainability – peer education is expensive, logistical barriers.
Duby et al. 2021	(1) The provision of emotional support and counselling  (2) Comfort and ability to relate on a peer-to-peer level  (3) Preference for receiving SRH from a similar age peer rather than an older adult	
Ferris France et al. 2023	CATS felt a transformative effect of delivering the intervention themselves and learnt new skills	Covid-19 and delivering intervention online. Lack of face-to-face context and poor network connection, erratic power supply, exorbitant data charges.
Harrison et al., 2023	Vital importance of social support provided by peer mentor and peer support program “It teaches me a lot about other illnesses and how to approach or interact with others”  Peer mentors themselves get to learn from the participants and new experiences.	An emotional toll when interacting with other young people with chronic illness, including sharing one’s story and working to understand and provide support to others
Im et al. 2018	TIPE intervention helped build a support system and enhanced the sense of community among participants. It promoted perceived social support, particularly among those with high PTSD symptoms.	
Kermode et al. 2021		The peer facilitators required a lot of support from the project team, which was essential for the success of the intervention
Mathias et al., 2019	Young people were willing to participate and continue the intervention as they were assured of respect and kindness from peer	



	facilitators “You never belittled our talk but always built it up. We came because we understood what you said, otherwise we wouldn’t have come. Who cares for drug addicts these days? But you showed that you did.”	
Merrill et al., 2023	Individual meetings with youth peer mentor (YPM) gave opportunity to open up about personal issues or sensitive topics like condom use and sexual behaviour. YPM unique abilities to connect with youth given a similar age and shared experience of living with HIV	
Simms et al. 2022	Peer-led intervention created a rare forum for adolescents to legitimately discuss their problems and be listened to with empathy by a trusted peer	Limits to how youth can solve their problems themselves as they have limited influence over their situations if they do not have adult support.
Tinago et al., 2024	Peer groups provided new forum to address primary sources of stigma, sharing challenges and seeking advice, alleviating social isolation as a source of stress  Sole source of sexual and reproductive health information  Consistent community engagement and trust-building efforts lead to increasingly positive and supportive attitudes towards participants and the intervention concept	

860  
861  
862