Accuracy of a Proactive Case Detection Tool for Internalizing and Externalizing Problems Among Children and Adolescents

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Article history: Received September 24, 2020; Accepted March 15, 2021

Keywords: Children; Adolescents; Detection; Mental health; Gatekeepers; Help-seeking; Occupied Palestinian territory

A B S T R A C T

Purpose: Lack of identification and referral of children and adolescents with mental health problems contributes to the treatment gap in low- and middle-income countries, and especially in humanitarian settings. The Community Case Detection Tool (CCDT) is developed to improve community-based detection and increase help-seeking among children and adolescents in need of mental health care. The CCDT uses brief, easily understood pictorial vignettes that represent common symptoms of childhood internalizing and externalizing problems. The tool is developed for gatekeepers to support proactive detection of children in need of mental health care and to subsequently encourage help-seeking. This study evaluates the accuracy of the CCDT in detecting children and adolescents aged 6–18 years with significant mental health care needs in a conflict-affected setting: the occupied Palestinian territory.

Methods: Teachers and community workers were trained to use the CCDT. Children detected using the tool were invited for a structured clinical interview with a psychologist using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version, as well as the Strengths and Difficulties Questionnaire, to test the accuracy of CCDT-based detection.

Results: Our sample consists of 52 children positively detected as matching with one of the vignettes. Approximately three of four detected children were indicated for psychological treatment based on the clinical interview (positive predictive value = .769), and 64.6% returned ‘borderline’ or ‘abnormal’ total difficulty scores on the Strengths and Difficulties Questionnaire.

Conclusions: The CCDT offers a promising low-cost solution to mitigate underdetection of mental health problems in challenging settings.

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Funding: This work was supported, in whole or in part, by the Bill & Melinda Gates Foundation [INV-001395]. Under the grant conditions of the Foundation, a Creative Commons Attribution 4.0 Generic License has already been assigned to the Author Accepted Manuscript version that might arise from this submission.

Conflicts of interest: The authors declare that they have no conflict of interest to disclose.

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The treatment gap between the burden of mental disorders and engagement with appropriate mental health care for children and adolescents in conflict-affected low- and middle-income countries (LMIC) is well recognized [1,2]. Accessing mental health care requires multiple steps including recognition...
of mental health needs, contemplation of possible courses of action and available sources of help, developing an intention to seek help, and actively obtaining care [3]. Along this pathway, various barriers impede access to appropriate mental health care. Supply-side issues, such as the shortage of evidence-based mental health care services, have led to the development of delivery models suitable for low-resource settings to provide scalable, evidence-based treatments [4,5]. For example, the task-sharing approach shifts (part of) the delivery of services traditionally performed by mental health professionals to trained and supervised nonspecialized community mental health workers [6,7]. However, even where services are available, demand-side barriers influence whether they will be used or not [8]. Frequently reported demand-side barriers include poor mental health literacy and negative attitudes toward mental health [4]. In addition, in children and adolescents, it can be difficult to differentiate between normative developmental changes and emerging signs of mental ill-health, resulting in underdetection and delays between disease onset and help-seeking [4]. Furthermore, in conflict-affected settings, gatekeepers may be too strained to spontaneously detect and link a pattern of behaviors or signs and make the necessary decisions to promote help-seeking.

Feasibility of commonly used universal screening instruments as a method to overcome underdetection is highly constrained in conflict-affected LMIC by the costs, time, human resources, and training required [8,9]. Furthermore, they may fail to identify the most vulnerable children, for example, those who are out of school, who work, or who rarely access services where formal screenings might happen. Given the issue of underdetection and the lack of appropriate instruments to detect children and adolescents in need of mental health care in conflict-affected LMIC, low-cost, innovative strategies are needed to improve detection in contexts where services are available [4,8]. This is especially important to assist United Nations Children’s Fund and other organizations to fulfill their commitments to mental health and psychosocial support programs by assuring children and adolescents in need are accurately identified [10].

Jordans et al. [9] developed the Community Informant Detection Tool (CIDT) as an alternative approach to increase help-seeking for mental health care in LMIC. Rather than indiscriminately screening people against a list of symptoms, the CIDT provides nonprofessionals with strong community engagement with illustrated, context-sensitive prototypes representing signs and behaviors indicative of mental ill-health and two simple questions to determine impairment in functioning and the need for support. Trained gatekeepers use these prototypes (i.e., vignettes) to detect individuals in need of mental health care using their informal observation during daily interactions. Where there is a significant match, the gatekeeper encourages the individual (or their family) to seek help from an appropriate service where a clinical assessment and treatment initiation can occur. Among adults in Nepal, the CIDT has demonstrated an accuracy comparable with some examples of primary health care screening in high-income countries, with a positive predictive value (PPV) of .64 [9]. In a follow-up study, using a different sample, Jordans et al. found that 67% of those detected with the tool went on to access mental health services, and 77% of this group initiated mental health treatment [11]. In a pragmatic randomized controlled trial, the use of the CIDT increased mental health treatment seeking by 47% [12]. Among children, however, the CIDT demonstrated less accuracy because of a high rate of false positives (PPV = .50) [9].

The aim of this study is to evaluate the accuracy of a modified Community Case Detection Tool (CCDT) in detecting children and adolescents aged 6–18 years with significant mental health needs in a conflict-affected setting.

Methods

Study setting

This research was conducted in nine schools and two community-based organizations (CBOs) in the old city of Jerusalem and villages around East Jerusalem, occupied Palestinian territory (oPt). Palestine has an estimated population of five million and is physically and institutionally divided into Gaza and the West Bank (including East Jerusalem) [13,14]. At least three generations of Palestinians have lived under Israeli military occupation and have borne the consequences through economic hardship and repeated violations of human and civil rights. Palestinians in these areas are subject to a complex system of control including different statuses that permit differential access to services and levels of free movement [13,15]. Palestinian children and adolescents experience high rates of exposure to political violence and traumatic events caused by the Israeli occupation such as witnessing shootings, imprisonment of peers and family members, and physical abuse [16,17]. Reported prevalence rates of psychopathology among Palestinian children and adolescents vary widely across studies (ranging from 10% to 42% in the West Bank) and should be interpreted with caution depending on measurement validity, time of data collection, and sample characteristics [16,18,19].

Community Case Detection Tool

The CCDT supports trusted community members with strong community engagement without prior mental health training (i.e., community gatekeepers) to proactively detect patterns of behavior as indicators of significant mental health needs and to subsequently encourage help-seeking. The tool contains two context-sensitive, illustrated vignettes that represent patterns of internalizing and externalizing behavior. Trained community gatekeepers are asked to match children they encounter in their daily routine onto these vignettes. A simple question diagram at the bottom of the vignettes supports the community gatekeeper to determine the severity and functional impact of the problems detected and advises the gatekeeper about follow-up actions (see Figure 1 and Supplementary File 1 and 2). When a child matches the patterns of behavior presented on the tool, and these are thought to be impacting daily functioning, the gatekeeper is advised to approach the family to encourage help-seeking.

The development of the CCDT followed a process similar to the CIDT [20]. Priority symptoms of the most common forms of childhood psychological distress were selected based on literature, clinical and field experience in conflict-affected LMIC, and feasibility of detecting the symptoms in daily life. Two brief, plain-language vignettes including illustrations were developed to facilitate easy recognition. A bilingual Palestinian psychologist translated the vignettes to Arabic using nonstigmatizing idioms readily understood by the general public. The Arabic translation
was then back-translated by a professional translator and examined by the local research team. Two focus group discussions with CBO workers were conducted to ensure the ecological validity of the Arabic vignettes. A two-week practice run was conducted to assess the safety and feasibility of the tool and process in the Palestinian context, identify the most relevant groups of gatekeepers, and select the implementation setting.
Design

Accuracy. The CCDT is developed for proactive case detection and not for diagnostic or screening purposes. Therefore, the PPV was selected as the measure to evaluate the accuracy. The PPV indicates the proportion of children positively detected by the CCDT who are found to be true positives—that is, they do have the condition of interest [21].

Given the purpose of the tool, we consider a moderately high PPV as an appropriate target for the CCDT, prioritizing accurate detection of true positives and allowing some tolerance for false positives. We used three possible criteria to define true positive based on which the PPV was assessed:

1. Indication for treatment: the interviewing psychologist’s judgment of the need for psychological treatment, based on the information gathered during the clinical interview.
2. Psychiatric diagnosis: a current probable or definite psychiatric diagnosis using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL) standard scoring [22].
3. Indication for treatment and psychiatric diagnosis: the combination of meeting any of the probable or definite diagnostic criteria and indication for treatment.

Concurrent validity. Concurrent validity of the CCDT was assessed, based on the proportion of CCDT-positive children who returned a total Strengths and Difficulties Questionnaire (SDQ) score within the internationally defined ‘borderline’ or ‘abnormal’ range [23,24].

Instruments

The Strengths and Difficulties Questionnaire. The SDQ is a brief behavioral screening questionnaire which includes five scales with five items each, generating scores for emotional symptoms, conduct problems, inattention-hyperactivity, peer problems, and prosocial behavior. All scales except for the prosocial behavior scale are summed to generate a total difficulty score [25]. We used the Arabic version, previously used in oPt, without the impact supplement [23,24]. The parent-report version was used for children below 11 years, and the self-report version was used for children aged 11 years or older.

The Schedule for Affective Disorders and Schizophrenia for School-Age Children. The K-SADS-PL is a semi-structured clinical interview used with children aged 6–18 years (and/or their caregivers) and is designed to identify current and lifetime mental health disorders in children in accordance with Diagnostic and Statistical Manual of Mental Disorders—IV criteria [22]. An Arabic version of the interview, translated by a nongovernmental organization (Un Ponte Per) based in Iraq, was adapted for use in this study. Based on the estimated prevalence in the targeted age group and appropriateness to the content of the vignettes, relevant modules were selected by three mental health professionals (A.B., M.J., and B.K.). Modules on depression, panic disorder, social phobia, generalized anxiety disorder, obsessive-compulsive disorder, enuresis, encopresis, attention-deficit hyperactivity disorder, oppositional defiant disorder, alcohol abuse, substance abuse, and post-traumatic stress disorder were included and rated for a current episode only (e.g., past 6 months). For the diagnosis of generalized anxiety disorder, the child criterion was used (i.e., worry associated with at least one of six symptoms). Furthermore, diagnoses were based on probable or definite psychiatric criteria as defined by the selected modules, and functional impairment was assessed when it was given as a diagnostic criterion in the Diagnostic and Statistical Manual of Mental Disorders—IV.

The Ten Questions Screen for Childhood Disability. A four-item abbreviated version of the Ten Questions Screen (TQS) for Childhood Disability was used to assess for serious disabilities related to hearing, speaking, or severe cognitive disability [26]. Detected children screening positive on one of the items were precluded from participation as the research method (i.e., interviews) would pose challenges to participation.

Participants

Teachers and community-based organization workers. Homeroom teachers (i.e., teachers with a core class assigned as opposed to a specific subject) (n = 70) and community workers (n = 3) were selected as community gatekeepers.

Children aged 6–18 years and their caregivers. The group of community gatekeepers was estimated to have regular interactions with a total of at least 1,752 children aged 6–18 years. The exclusion criteria for children were as follows: (a) serious disabilities impacting communication or cognitive function, as identified by the TQS, (b) immediate family members of the community gatekeepers, and (c) urgent safety or protection concerns which would make participation unsafe or inappropriate. Children who were known to the community gatekeeper as already receiving mental health or related services before detection were invited for the interview with a psychologist, but the detection was not included in analyses as this knowledge was likely to influence the detection.

To minimize confirmation bias by the psychologist or research assistant conducting the interviews, the gatekeepers were also asked to detect probable negative cases (i.e., cases intentionally detected as not matching with the tool). These cases (n = 7) followed similar procedures but were not analyzed.

Procedure

Training. Community gatekeepers participated in a one-day training covering the use of the tool and ethical guidelines. Three psychologists in current practice at the Palestinian Counseling Center (PCC) were trained for five days in clinical interviewing using an adapted version of the K-SADS-PL [22]. This training was conducted by a professional with knowledge of the context, a postgraduate clinical child psychology qualification, and experience using K-SADS-PL in research studies (A.B.). The psychologists were supervised during the first three months of the research. School counselors and CBO staff members were trained as research assistants.

Detection and assessment. The trained community gatekeepers were asked to register all children and adolescents they detected using the CCDT during a six-month period. On a registration card designed for this study, they indicated which vignette most resembled the child or adolescent (i.e., internalizing or externalizing problems) and whether they were aware of any previous
referrals to a mental health specialist for that specific child. After detection, a research assistant approached the caregiver within three days to set an appointment to obtain consent and to screen for inclusion. The SDQ was administered by a research assistant, and the child and caregiver were invited for a clinical interview with the psychologist within two weeks after detection. Children above 11 years were interviewed directly, and below 11 years, the primary caregiver was interviewed. Where treatment was indicated, the caregiver and child were encouraged to access appropriate care. Caregivers who could not be reached by research staff or were unable to attend the interview were excluded from the study.

Ethics

Ethical approval for the research was obtained through Birzeit University, oPt, and all activities in schools were conducted with the support of the Palestinian Ministry of Education. Before commencement of the study, an information letter including details of communication channels was sent to parents and caregivers of children attending the targeted schools and CBOs, which would allow parents and caregivers to raise questions and concerns. After detection, children were only included in the study after obtaining informed consent by a parent or (appointed other) primary caregiver and assent from the child. In case of no consent or assent, or meeting exclusion criteria, contact details of the PCC were shared with the family. All children in need of psychological treatment were referred to available care free of charge coordinated by the PCC. The research team was trained in confidentiality, child safeguarding, and adverse events.

Analysis

The primary outcome of interest was the PPV of the CCDT based on the indication for psychological treatment assessed via the clinical interview. The secondary outcomes were the PPV based on a probable or definite diagnosis as defined by the K-SADS-PL and for the combination of diagnosis and indication for treatment. The PPV was calculated as the proportion of detected cases later assessed to be true positives based on these criteria. Exploratory analyses evaluated the PPV of each vignette separately (i.e., performance of the internalizing vs. externalizing vignette) and by gender. As a proxy for concurrent validity, we assessed the proportion of CCDT positives that returned a total difficulty score within the internationally defined ‘borderline’ or ‘abnormal’ range. Calculation of a correlation coefficient between the SDQ and the CCDT was not possible as the sample only included probable positives. Analyses were conducted using the Statistical Package for Social Sciences (SPSS, version 19.0).

Results

A total of 107 children were detected by the community gatekeepers, of whom 55 were excluded: 40 either could not be reached or refused to participate in the research, three met the TQS criteria, one file was missing, and 11 were excluded from analyses because of an existing referral to a mental health or related service known to the gatekeeper before detection (Figure 2). The final sample for PPV calculation, therefore, consisted of 52 children (n = 20 girls); see Table 1 for sample characteristics. The average age was 11.6 years (standard deviation = 2.8). Of these children, 53.8% were detected as primarily matching the internalizing problem vignette, 42.3%, the externalizing problem vignette, and for 3.8%, a match with both vignettes was found.

In 77% of the CCDT-detected cases, the indication for psychological treatment—the primary outcome of interest—was accurately detected (PPV = .77); the other 23% of detected cases were not deemed as needing psychological treatment. Compared with our second criterion, a probable or definite psychiatric diagnosis, the CCDT demonstrated a PPV of .62. Analysis based on the third criterion, indication for psychological treatment and a diagnosis, resulted in a PPV of .56. Exploratory PPV analyses for each vignette separately and by gender are summarized in Table 2. Analysis of concurrent validity with the SDQ found that 64.6% of the 48 detected children for whom SDQs were available returned ‘borderline’ or ‘abnormal’ total difficulty scores.

Discussion

Approximately three of every four children detected were indicated for psychological treatment. Compared with the child...
CIDT developed in Nepal, the CCDT performed better by returning fewer false positives (PPV of .50 vs. .62 based on probable or definite diagnosis). The PPV (diagnosis) of the adult CIDT in Nepal (.68) and the child CCDT in Palestine (.62) were comparable [9]. Prevalence rates were not taken into account, and the gatekeepers in each context were different; however, even with these caveats, the findings suggest promising utility of a proactive case detection strategy to detect children in need of mental health care.

Of the 52 positively detected children, 23% were assessed as not in need of psychological treatment. Such false positives present a risk of unnecessary burden on the available services as well as discomfort for children and their caregivers. Comparing the risk of potential oversensitivity with the potential preventive benefits, we considered this an acceptable false positive rate. Although these results are interpreted as promising, the thresholds for an acceptable PPV should be interpreted differently for each potential future context. A moderately high PPV such as observed here was considered ideal in a setting where there is some availability of follow-up assessment services and where false detection is unlikely to cause significant harm or distress. In a different setting, however, definition of true positive may need to be recalibrated to include only definite diagnosis of severe illness, and only a very high PPV would be tolerable.

The assessment of true and false negatives was not included in this study because the CCDT is not developed as a screening instrument that typically discriminates caseness versus non-caseness. Rather the CCDT aims to proactively detect positive cases in need of mental health care.

Variations by reference criteria

A slightly higher PPV for indication for psychological treatment than for diagnosis was found; in that, 21% (i.e., 11 of 52) of detected children were considered to require treatment, but in the absence of a diagnosis. As the primary function of the CCDT is to detect those in need of mental health care, children with a psychiatric disorder as well as children not meeting formal diagnostic criteria but assessed as needing mental health care were therefore considered true positives in this study. The variations by reference criteria may, however, call into question the appropriateness of using diagnostic criteria as the gold standard to gauge the need for psychological treatment in children. There is a well-established etiological pathway from subclinical mood and behavior symptoms in childhood and adolescence to case-level and potentially persistent mental illness in adulthood [27–29]. Early detection of subthreshold psychological distress, therefore, has benefits for quality of life and years lost to disability that extend far into adulthood [30,31]. The detection of children with probable as well as confirmed diagnoses and children not meeting formal diagnostic criteria but in need of support is therefore considered a strength of the CCDT. The results suggest that the decision algorithm within the tool which asks the gatekeeper to informally assess the severity and functional impact of the problems observed was, in this case, well calibrated.

Acceptability

Despite these preliminary promising results, several issues around acceptability were observed. Although the total number

Table 1
Sample characteristics

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>20</td>
<td>38.5</td>
</tr>
<tr>
<td>Boys</td>
<td>32</td>
<td>61.5</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6–9</td>
<td>11</td>
<td>21.2</td>
</tr>
<tr>
<td>10–14</td>
<td>30</td>
<td>57.7</td>
</tr>
<tr>
<td>15–18</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>School grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary level (grades 1–10)</td>
<td>45</td>
<td>86.6</td>
</tr>
<tr>
<td>Secondary level (grades 11–12)</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>N/A—detected in the CBO</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Vignette used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing problem vignette</td>
<td>28</td>
<td>53.8</td>
</tr>
<tr>
<td>Girls</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td>Boys</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Externalizing problem vignette</td>
<td>22</td>
<td>42.3</td>
</tr>
<tr>
<td>Girls</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td>Boys</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Vignette version not specified</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Girls</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Boys</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>47</td>
<td>90.4</td>
</tr>
<tr>
<td>Community-based organization</td>
<td>5</td>
<td>9.6</td>
</tr>
</tbody>
</table>

CBO = community-based organization.

* One case with a missing value.

Table 2
Positive predictive values and validity measurement

<table>
<thead>
<tr>
<th>Positive predictive value by reference criteria</th>
<th>Indication for treatment</th>
<th>Probable or definite diagnosis (K-SADS-PL)</th>
<th>Indication for treatment and diagnoses</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>PPV</td>
<td>n</td>
<td>PPV</td>
</tr>
<tr>
<td>CCDT positives</td>
<td>40/52</td>
<td>.77</td>
<td>32</td>
<td>.62</td>
</tr>
<tr>
<td>Vignette-specific</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing vignette</td>
<td>23/28</td>
<td>.82</td>
<td>17</td>
<td>.61</td>
</tr>
<tr>
<td>Externalizing vignette</td>
<td>17/22</td>
<td>.77</td>
<td>14</td>
<td>.64</td>
</tr>
<tr>
<td>Both vignettes</td>
<td>0/2</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Gender-specific</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>16/20</td>
<td>.80</td>
<td>12</td>
<td>.60</td>
</tr>
<tr>
<td>Boys</td>
<td>24/32</td>
<td>.75</td>
<td>20</td>
<td>.63</td>
</tr>
</tbody>
</table>

CIDT = Community Case Detection Tool; K-SADS-PL = The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version; PPV = positive predictive value; SDQ = Strengths and Difficulties Questionnaire.
of detected cases \( n = 107 \) was considered acceptable given the total estimated catchment population \( N = 1,752 \), over one third \( n = 40 \) of these were excluded because parents or children declined or could not be reached. A fragmented health care system, restricted access for Palestinians to basic services, dynamics of distrust within communities due to the ongoing occupation, and prevalent attitudes toward mental illness most likely influenced willingness to participate and disclose information to strangers. It is unsurprising, therefore, that some community gatekeepers hesitated to make detections and some parents were reluctant to heed them. Compared with the children who were included in the study \( n = 52 \), those who refused to participate or could not be reached \( n = 40 \) had similar patterns with regard to the frequency of vignettes based on which children were detected. Furthermore, the majority of excluded children \( 35\%, n = 14 \) were from grade 5–9 \( \text{average estimated age range 10–14 years} \). Given the small sample size and lack of demographic data gathered from this group, no further conclusions can be drawn with regard to the acceptability of the CCDT.

**Limitations**

The psychologists’ judgment of the need for psychological treatment may have been overestimated because of positive bias. The psychologists may have been more inclined to include than to exclude, both based on concern for the individual and an acute awareness of the general hardship experienced by the children they interviewed. Likewise, although gatekeepers were asked to also detect a small number of probable negative cases \( n = 7 \) and the psychologists were aware of this, but not how many, the number of negative cases might have been too low to eliminate the confirmation bias. Of the seven cases intentionally detected as not matching with the tool, three were judged by the psychologists as in need of psychological treatment. Another potential source of bias is in the detected cases who declined follow-up. A potential reason for declining for a number of these children and their parents could have been an accurate self-assessment that treatment was not required, or the number of these children and their parents could have been an acute awareness of the general hardship experienced by the children they interviewed. Likewise, although gatekeepers were asked to also detect a small number of probable negative cases \( n = 7 \) and the psychologists were aware of this, but not how many, the number of negative cases might have been too low to eliminate the confirmation bias. Of the seven cases intentionally detected as not matching with the tool, three were judged by the psychologists as in need of psychological treatment. Another potential source of bias is in the detected cases who declined follow-up. A potential reason for declining for a number of these children and their parents could have been an accurate self-assessment that treatment was not required, which may have inflated the PPV. Furthermore, it is important to note that the Arabic K-SADS-PL used in this study has not been used among Palestinians before. It is possible that this influenced the psychiatric diagnostic outcomes used as one of the criteria in our study. In addition, although the SDQ is widely used among the Palestinian population, it has not been validated, and the standard clinical cut-off scores are not adjusted based on the context and prevalence of mental health problems among Palestinian children [23,24].

**Implications**

Given the lack of suitable cost-effective tools for proactive detection of children needing mental health care in conflict-affected LMIC, the CCDT is a promising low-cost solution. To improve the feasibility of this approach in Palestine and other conflict-affected areas, intersecting demand-side barriers need to be tackled. Proactive case detection needs to be combined with additional strategies to overcome barriers and support caregivers to seek help and initiatives to address stigma related to mental health. Furthermore, given the small sample size of this study and high exclusion rate, future studies with a larger sample are needed to further evaluate the performance of the CCDT. To assess the acceptability and accuracy of the CCDT in other conflict-affected LMIC, where school coverage is low, studies with other community users are needed. Further research will examine the performance of the CCDT (including a vignette focusing on family-related risk factors) in community settings, with different groups of community users, and will assess its effectiveness in increasing actual help-seeking.

**Funding**

The study was supported by a foundation that wishes to remain anonymous. The foundation had no role in the study design and implementation.

**Acknowledgments**

The authors thank the children who participated, their parents and caregivers, the General Directorate of Counseling and Special Education of the Palestinian Ministry of Education, colleagues from War Child oPt, the Palestinian Counseling Center, the research teams in schools and CBOs, Rinske E. C. Ellermeijer, Dr G.V. Koppenol-Gonzalez, and TPO Nepal.

**Supplementary Data**

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jadohealth.2021.03.011.

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