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Development of a transdiagnostic stepped care program for common adolescent mental health problems in Indian secondary schools: lessons from a pilot study examining acceptability and feasibility

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Abstract

**Background.** The “PRemIum for aDolEscents” (PRIDE) project has developed a school-based, transdiagnostic stepped care programme for common adolescent mental health problems in India. The programme comprises a brief problem-solving intervention (“Step 1”) followed by a personalised cognitive-behavioural intervention (“Step 2”) for participants who do not respond to the first step.

**Methods.** A mixed-method design was used to evaluate the acceptability and feasibility of the stepped care programme in five schools in New Delhi. Participants included N=80 adolescents (mean age=15.3 years, females=51%) with elevated mental symptoms and associated distress/impairment.

**Results.** 61 (76%) of the enrolled sample were assessed following Step 1, from which 33 (54%) met non-remission criteria. Among these 33 non-remitted cases, 12 (36%) opted for Step 2 and 5 (42%) completed the full programme. The remaining non-remitted cases (n=21, 64%) opted out of further treatment. Perceived resolution of the primary problem (n=9, 43%) was the most common reason for opting out. The median time to complete each step was 22 and 70 days respectively, with a gap of 31 days between steps. Qualitative feedback from adolescents and counsellors indicated requirements for a shorter delivery schedule, greater continuity across steps and more collaborative decision-making.

**Conclusions.** This study provides preliminary evidence for a stepped care programme aimed at common adolescent mental health problems. Modifications are recommended to enhance acceptability and feasibility of the programme in low-resource settings.

**Keywords.** adolescent mental health, schools, stepped care, transdiagnostic interventions, India
Introduction

The “PRemIum for aDolEscents” (PRIDE) project was initiated in 2016 to address the large burden of adolescent mental health problems in India, home to 20% of the global population of adolescents (United Nations Department of Economic and Social Affairs, 2019). Designed initially for urban, low-income secondary schools, the PRIDE intervention model incorporates three design innovations. First, a core set of practice elements have been systematically identified by matching evidence-based practices to common adolescent problems in the local context (Boustani et al., 2020). These practices are combined within a structured transdiagnostic protocol that targets elevated presentations of anxiety, depression and conduct problems, identified through screening for symptoms and associated distress/impairment (Michelson et al., 2020a; Chorpita et al., 2020). Second, PRIDE employs lay counsellors as the primary delivery agents, in line with evidence for the cost-effectiveness of task-sharing in mental health care in diverse low-resource settings (Raviola et al., 2019). Third, a stepped care architecture (Bower and Gilbody, 2005) allows for further resource efficiency, such that a broadly applicable problem-solving intervention (“Step 1”) is delivered as a brief first-line intervention, followed by a more tailored, higher-intensity second step (“Step 2”) for non-responders. The blueprinting of these intervention steps has been detailed elsewhere (Michelson et al., 2020a; Chorpita et al., 2020), while Step 1 has also been trialled as a standalone intervention (Michelson et al., 2020b; Malik et al., 2021). The latter showed small but sustained effects (over 12 months) on multiple outcome domains, including mental health symptoms, self-defined problems, functional impairment and perceived stress. Nonetheless, around half of the Step 1 participants did not meet remission criteria in the short-term, suggesting the need for extended and more differentiated treatment among early non-responders. Here we report the first formal evaluation of the integrated stepped care programme, examining acceptability and feasibility with respect to quantitative
process indicators, indicative outcome measures and qualitative feedback from intervention participants and providers.

**Methods**

**Design and setting.** A mixed-method design was used to assess the acceptability and feasibility of the stepped care programme in three government-aided and two charity-aided secondary schools in New Delhi, India. Three of the schools were co-educational and two were all girls’ schools, with sampling frames in grades 8-12 ranging in size from 560 to 1250 across the five schools. None of the schools had pre-existing individual counselling provision. Approvals were obtained from the partner schools and Institutional Review Boards of Sangath (the implementing organisation) and Harvard Medical School (the sponsor).

**Participants, measures and procedures.**

Study referrals were accepted from teachers and directly from students over a seven-month period (July 2019-February 2020). Referrals were generated using a combination of whole-school and classroom-based sensitisation activities (see Parikh et al., 2021 for a detailed description). The former included poster displays on school notice boards and information sessions with teachers and principals. Classroom activities included counsellor-led presentations involving an explanatory video and interactive discussion. Referred students were followed up individually by the research team and assessed for eligibility using the Strengths and Difficulties Questionnaire (SDQ) and its Impact Supplement (Goodman, 2001), which are internationally validated measures of youth mental health symptoms and distress/impairment respectively. Eligibility thresholds are set out in Figure 1 and elaborated elsewhere (Parikh et al., 2019). Individual assent was obtained from participants along with parent/guardian consent for adolescents aged below 18 years. At baseline (T0), participants
completed the Youth Top Problems (YTP, Weisz et al., 2011), a self-reported idiographic measure of prioritised psychosocial problems. Participants were then offered a lay counsellor-delivered problem-solving intervention (Step 1). Following Step 1, adolescents were re-assessed (T1) and those who were non-remitted were offered further intervention (Step 2) by a psychologist. As described in Figure 1, the Step 1 providers included six lay counsellors (one per school and one supplementary counsellor deployed in co-educational schools). Step 2 was delivered by three psychologists (each shared between two schools). All providers received five days of office-based training by intervention developers, followed by weekly supervision for the study duration. Further details about the intervention steps are provided in Figure 1.

[Insert Figure 1 here]
Participants who completed the T1 assessments were followed up at T2 (approximately 12 weeks from T0, or immediately following Step 2 if this extended beyond 12 weeks). Participants who received both intervention steps were additionally invited to take part in semi-structured individual interviews. Qualitative data were also obtained from separate focus group discussions with Step 1 and Step 2 providers. All outcome assessments, individual interviews and focus groups were conducted by researchers who were not involved in intervention development or delivery.

**Analysis.** Acceptability was examined using quantitative indicators of uptake, completion, and reasons for non-completion for each intervention step. These data were triangulated with themes from qualitative interviews with adolescents (n=9). Feasibility was examined using quantitative indicators of dosage, duration of intervention steps and transitions, as well as qualitative feedback from Step 1 providers (n=5) and Step 2 providers (n=3). Indicative clinical outcomes (SDQ Total Difficulties and YTP scores) were analysed descriptively for those participants who completed assessments across the three time points. Remission rate, operationalised as scoring below initial eligibility cut-offs on both the SDQ Total Difficulties and SDQ Impact scales, was assessed at T2.

**Findings**

**Acceptability.** A total of 476 referrals were received, accounting for 43% of the student population in 32 classes sensitised during the study period. Of the referred adolescents, 337 (71%) were assessed for eligibility and the rest opted out (n=139, 29%). As shown in figure 2, 80 adolescents (24%) completed consent procedures and were enrolled in the study (age: M=15.3 years, SD=1.4; n=44, 55% females). From this enrolled sample, 72 (90%) started Step 1 and 49 (61%) attended 4 or 5 sessions, as recommended by the intervention protocol. Sixty-one (76%) study participants were assessed at T1, of which 33 (54%) met non-
remission criteria and were thus eligible for Step 2. Only 12 (36%) non-remitted participants opted for Step 2 (age: M=14.7 years, SD =1.3; n=4, 33% females) and five (42%) completed the full course (i.e., attended at least five sessions, including a final maintenance and relapse prevention session). The remainder of the non-remitted cases (n=21, 64%) opted out from further treatment, most commonly because of perceived resolution of the primary problem (n=9, 43%) (see Figure 2 for other reasons for opting out and non-completion of intervention across both steps).

[Insert Figure 2 here]

Adolescent interviews suggested that the relatively shorter duration of Step 1 was preferred because it minimised interference with participants’ other regular commitments. There was also consensus around the benefits of a strong therapeutic bond and the undesirability of transitioning to a new counsellor between steps. In addition, most interviewees preferred the illustrated comic-book format of the Step 1 booklets compared with the text-based handouts given during Step 2. Nevertheless, most participants felt that Step 2 provided a useful complement to Step 1 by teaching additional coping skills.

Feasibility. Step 1 completers attended a mean of 4.7 sessions (SD=0.5) spread over 22.0 days (IQR=17.0, 34.0). Step 2 completers attended an additional 7.4 sessions (SD=2.7), spread over 70 days (IQR=37.0, 74.0), with a median gap of 31 days (IQR=22.0, 67.3) between steps. These feasibility indicators were longer than planned for Step 2 and for the transition between the two steps (Figure 1).

In line with qualitative feedback from adolescents, providers endorsed a shorter intervention and greater continuity between steps. To this end, they recommended (i) more regular availability of school-based counsellors to enable flexibility in scheduling, (ii) use of the same trained lay counsellors to deliver both intervention steps, and (iii) counsellors (rather than
researchers) conducting step-up assessments to enable more dynamic and collaborative decision-making.

**Clinical impact.** Complete outcome data were available for 41 participants (see Figure 2). As shown in Figures 3a and 3b, the 22 participants who were remitted at T1 showed sustained improvement in their SDQ Total Difficulties and YTP scores up to T2 without further treatment being provided. Among the group that was non-remitted at T1 (n=5), completing Step 2 coincided with a drop in scores from T1 to T2. Among the participants who were eligible for, but did not initiate or complete Step 2 (n=14), outcomes were unchanged from T1 to T2. At the individual case level, 18 out of 22 (82%) Step 1 remitters remained remitted at T2. Step 2 completers were more likely to remit (3 out of 5, 60%) compared with counterparts that did not start or otherwise complete Step 2 (3 out of 14, 21%).

[Insert Figure 3 here]

**Discussion**

This study reports on the acceptability and feasibility of a novel stepped care programme targeting common adolescent mental health problems in India. The results suggest that teaching additional coping skills may help to improve outcome trajectories for non-responders to a first-line intervention. However, several factors deterred uptake of Step 2. These included mismatch between the stepping up criteria and adolescents’ subjective perceptions of improvement, delays in stepping up, dissatisfaction with changing counsellors, and the prolonged overall treatment duration. Further, the relatively limited appeal of text-heavy printed handouts affected adolescents’ engagement with Step 2 materials.

Following from these results, four key modifications have been incorporated into an optimised stepped care protocol. First, a two-provider model has been superseded by an
arrangement where a single trained (lay) counsellor delivers both steps. Second, we have changed the decision-making procedures for stepping up. Rather than deploying binary cut-offs based on standardised symptom-based measures, counsellors focus on trajectories of change on the YTP, a person-centred outcome measure (Krause et al., 2021). The new system will emphasise shared decision-making, involving collaborative discussions that explore the index adolescent’s expectations and perceived progress, leading to a shared understanding about the need for, and potential focus of, additional treatment (Guinaudie et al., 2020). Third, the preference for an accelerated delivered schedule has been addressed by capping the maximum number of Step 2 sessions at six and providing practice materials earlier in the intervention so that participants can use these at their own pace. Fourth, we have re-designed the adolescent-facing resource materials for Step 2 to ensure better consistency with illustrated booklets used in Step 1. A future report will provide evidence on the modified stepped care protocol, including data on its use remotely during the Covid-19 pandemic when schools were physically closed.

To our knowledge, this is the first study to evaluate a stepped care mental health intervention for adolescents in a low- or middle-income country. Strengths of the study include the triangulation of multiple data sources, and a participant sample with diverse mental health presentations that reflect real-world case mix, thus strengthening the generalisability of findings. However, the findings need to be interpreted with caution, given lack of a control condition, the small number of participants who ultimately completed both intervention steps, and the relatively large proportion of Step 1 participants who were unavailable for follow-up. Moreover, future research is needed to assess the PRIDE stepped care model and other stepped protocols across diverse populations and resource contexts, such as out-of-school youth and in rural communities. Research is also needed to investigate how the competencies
required to deliver shared decision-making can be operationalised, learned and used effectively by lay counsellors.

**Conclusion**

This study provides preliminary evidence for a sequential stepped care programme addressing common adolescent mental health problems in a low-resource setting. Several modifications have been proposed to ensure that the next iteration of the stepped care protocol is more collaborative and attuned to changes in young people’s prioritised problems (rather than symptoms per se), can be delivered in a time-efficient manner, and affords adequate continuity between steps. Future research is planned for the modified stepped care protocol, particularly with respect to the use of intervention in context of the COVID-19 pandemic and feasibility of implementing shared decision-making.

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**Ethical standards**

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. The study was approved by the
Institutional Review Boards of Sangath, India (Reference number: VP_2015_017) and Harvard Medical School, USA (Reference number: VP_2015_017). The written consent procedure is detailed in the manuscript.

**Conflicts of interest**

The authors declare no conflict of interest.

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