Ask-Boost-Connect-Discuss (ABCD) is a mobile-based tool to improve maternal mental health among adolescent mothers living with HIV, delivered by peer supporters in low-resource settings. Peer supporters are young people living with HIV who are engaged in existing networks with health services. The original package of care for ABCD proposed included: screening psychosocial needs of young mothers (“Ask”), mental health support (“Boost”), help with accessing services (“Connect”), and ongoing supervision and self-care (“Discuss”). The original ABCD app (an ABCD prototype) was designed through an ongoing co-development process with end-users and carried out in four focus countries (Uganda, Tanzania, Malawi, and Zambia). Across all sites, attendance in ABCD-related group activities was high and the pilot programme was found to be feasible, acceptable, valuable, and responsive to the needs of both peer supporters and the young moms they supported.

These practical findings indicate that a technologically-based tool can equip peer supporters to provide psychosocial support to adolescent mothers.
Activities

Co-development with peer supporters, adolescent mothers and technical advisors reflected an information sharing process, and covered four main steps shown in Figure 1. A group of peer supporters was engaged both as co-developers and as users/facilitators of the mobile app. In designing, adapting, and implementing ABCD, adolescents’ personal and job-related needs and choices were taken into account to improve their ability to provide psychosocial support to their peers.

1. Initial review and consultation: For the Boost component, the WHO Thinking Healthy manual was reviewed. Thinking Healthy is a way to support young pregnant women or new moms who are dealing with depression, and was designed to be delivered by lay health workers in low-resource settings. The manual guides pregnant women and new moms through strategies for replacing “unhealthy” thoughts and feelings with “healthy”, positive thoughts and feelings.

Current mental health screening tools were reviewed for “Ask,” with further exploration on how “Connect” and “Discuss” functions could work within the app. Questions about experiences, challenges and stigmas were shared with peer supporters, adolescent mothers and technical advisors in each focus country, gathering information on how to change existing materials so that they relate to adolescent mothers living with HIV in low-resource, African settings.

2. Adapting content and developing the app: The adolescent-adapted “Boost” component was combined with a comprehensive package of care that peer supporters were trained to deliver. Inputs from initial consultations informed the structure for the mobile app, in which peer supporters were guided through “thought cycles” using key messages. A critical aim was to develop a tool that would be responsive to peer supporter needs: easy to use, engaging and valuable for an adolescent implementer. The prototype app included a pre- and post-pilot programme depression screening and was structured for one-on-one sessions between peer supporters and young moms. It also included “baby interaction charts” where young moms could record their daily activities with their infant.

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3. **Prototype testing and co-development consultations:** The ABCD prototype was shared with all peer supporters at a workshop in Tanzania in November 2018. Peer supporters and technical advisors were given the opportunity to test it using mobile phones supplied to them. They shared first impressions, raised concerns about content and structure, and suggested changes to the app to speak to the context of the participating countries. **Mental health stigma was raised as a central concern,** leading to further changes of the “Ask” screening tool. It was also suggested that the app **starts with a general “check-in”,** where young moms could share how they were feeling. Words to describe stress, sadness, need for support and discomfort were included. Peer supporters and technical advisors recommended **group-based sessions instead of individual sessions,** using support groups to reach young moms. Other feedback that was taken into account included building the capacity of peer supporters to offer this type of support, hosting support groups on antenatal and HIV days at facilities and making sessions as inclusive as possible, with no attendance restrictions.

Technical advisors encouraged involving facility staff (including peer supporters, on-site supervisors and counsellors) in training and mentorship of the ABCD app, and suggested holding informational meetings ahead of implementation to improve uptake and ensure support from clinic stakeholders to align with the community.

4. **Refining the app:** Following the feedback session, the team made changes to the ABCD app to allow for group-based discussions. **Figure 2** shows the final stage changes to ABCD's structure. Additional resources were also included in the app for peer supporters to educate themselves on infant development, HIV, and psychosocial support, enabling them to respond to challenges in facilitating group-based sessions with vulnerable young moms. Baby interactions charts were finalised for each group, so that young moms could set personal goals and track progress towards starting “healthy” behaviors in caring for their infants. Country specific information regarding referral linkages for "Connect" was collected and loaded onto the app to provide peer supporters with information on local service providers for referring young moms. Service providers such as counsellors were included in ABCD introduction and training, supporting facility integration.
ABCD implementation

Implementation was led by and centered on young people, engaging concepts of task-shifting of key roles to peer supporters to identify, connect with, and mobilise vulnerable young moms living with HIV. In implementing ABCD within their own communities, peer supporters learned and practiced new skills, gained confidence, and became advocates for their peers.

Training and implementation: After the app changes were made and finalised, a train-the-trainer approach was used to provide the technical advisors with the necessary knowledge and guidance to lead training with peer supporters in each of their respective countries. Training included sensitivity and education around mental health, cognitive-behavioral therapy (CBT) techniques, HIV/AIDS, and infant development; it also focused on group facilitation, communication skills “what-if” scenarios, and resources that peer supporters could access for their own self-care. Supervision resources were emphasised to ensure peer supporters were well-prepared and able to carry out their roles. The pilot programme was rolled out between March-August 2019, across 15 facility sites in Uganda, Tanzania, Malawi and Zambia.

Findings: A total of 81 sessions were held by 20 peer supporters, with 147 young moms registered in these sessions (see Figure 3). Average attendance rates of young moms was between 75% to 88% across sites, and 83% of the registered young moms attended at least two-thirds of sessions offered. High rates of attendance was positive considering challenges often experienced by adolescents and young moms in attending and accessing services generally in these settings.
Peer supporters were also asked to give feedback on their own performance following each session, with a checklist of personal strengths, challenges they encountered, and skills they wanted to work on for the upcoming session. The most common personal strengths identified by peer supporters were 

listening skills (74% of all responses), discussing confidentiality (62%), group facilitation while using an app (38%), and connecting young moms to further support (34%). Common challenges included communicating clearly (46%), group facilitation while using an app (43%) and explaining practice work, such as the baby interaction charts (41%). In identifying goals for the next sessions, peer supporters showed interest in improving their confidence (55%), listening better (51%), developing a professional attitude (45%) and showing empathy (42%).

Focus group discussions and in-depth interviews: In order to show what worked well in ABCD, five focus group discussions were conducted with 15 peer supporters, as well as in depth interviews with four technical advisors and 12 facility staff. On an individual level, peer supporters reported developing close relationships with the young moms who attended the support groups, and observed that young moms developed positive thinking, discussed challenges, built their confidence and accessed healthcare. Many peer supporters, across all four countries, reported that ABCD increased mental health awareness among young moms living with HIV, provided a platform for linking young moms to services and showed the scale of current unaddressed health needs to facility staff. Additional mental health needs, including gender-based violence, were also found to be key issues that could be addressed through integrating ABCD into health services.

Interviews with facility staff and technical advisors further reflected positive feedback. While a number of facilities reported that in the beginning, the pilot programme caused delays in the running of activities in the facility, sessions were changed so that they took place after health appointments, addressing this concern. Facility staff views also changed positively over time through increased engagement with ABCD. Facility staff reported that ABCD’s young moms showed improved retention and adherence to antiretroviral therapy (ART). Staff felt more aware of potential barriers to care and challenged assumptions about mental health and integrated HIV services. They were also interested in including ABCD within their standard service package offered for young women living with HIV: 

"Integration
of the ABCD intervention into adolescents HIV service delivery will help the clinician to develop skills and knowledge in dealing with young mothers and adolescents presenting illness and depression” - Facility staff, Uganda.

**Key takeaways for future scale-up:**

The following core findings highlight the cross-cutting effects of ABCD and promising avenues for further rollout:

- The management of ABCD by young peer supporters highlighted the importance of partnering with young people in order to produce the final ABCD app, with their feedback critical to its development.
- Engagement and involvement of young peer supporters from the onset assisted in developing a feasible, engaging, and effective application.
- The integration of ABCD into existing services maximized uptake and reach.
- Initial findings show that ABCD has broader effects on mental health and psychosocial education.

**Challenges**

Challenges in Phase I included stigma, logistics, programming, and recruitment:

- **Mental health and HIV stigma:** Adolescent mothers were successfully engaged and retained, and cited great benefits from participating in ABCD; however, there may have been additional young moms experiencing internalized stigma or related life stressors who felt unable to participate.

- **Logistics:** Implementing ABCD in a resource-constrained areas was a challenge, but was addressed by investing in existing peer support networks linked with facility staff and community members. Technological challenges such as the app not working properly, not enough data and broken smartphones were highlighted, with a lack of transport for young moms to attend support groups also presenting as a challenge.

- **Programming and recruitment:** There is a need to find ways to better include and reach the most at-risk young moms. There is also a need to explore issues such as legal consent, testing strategies to reduce stigma-related barriers and integrating programming into community-based spaces.
Recommendations for future development

Integrating ABCD into facility and community settings: There is opportunity for the ABCD tool to be used further, for example by:
- Individuals in facility waiting rooms
- By outreach support groups in communities with smaller groups
- By young moms who have completed the pilot programme

Providing incentives for young moms to improve attendance and retention: Despite particularly high rates of attendance and retention for an adolescent sample, barriers to attendance including transport costs and childcare were identified.

Translating content to local languages: The prototype app was conducted in English (Uganda, Malawi, Zambia) and Kiswahili (Tanzania). Roll out would need to ensure key messages and related content on the app is provided in local languages.

Conclusion

In conclusion, the pilot showed great potential for impact at scale. ABCD provided a well-attended forum for young mothers to discuss their psychosocial needs and learn coping skills. It offered a platform to connect young mothers and their infants to support and health services, with a matched commitment from health providers. Young peer supporters were able to gain confidence through supporting peers and practicing newly-gained skills. This tool represents an exciting and novel way to reach vulnerable young mothers and create capacity among young people living with HIV engaged as peer supporters, providing a blueprint for future efforts to reach and empower adolescents living in adversity across multiple levels.

Thank you

Valuable feedback from peer supporters, technical advisors and facility staff was received and will be used for further development of the ABCD pilot programme

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