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Translating primary into 'positive' prevention for adolescents in Eastern Africa

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Summary

There is an urgent need to develop positive prevention interventions for adolescents living with HIV in high endemic regions. Adapting existing evidence-based interventions for resource-constrained settings is effective when the intervention's theoretical core elements are preserved while achieving cultural relevance. We describe the process of adapting a primary prevention to a secondary/positive prevention programme for adolescents living with HIV in Kenya and Uganda. The systematic adaptation was guided by the Centers for Diseases Control's map for the adaptation process, describing an iterative process. The procedure included: assessing the target positive prevention group's needs (safer sex; fertility-related issues), identifying the potential interventions through a literature review, conducting qualitative adaptation research to identify areas for adaptation by ensuring cultural relevance (revising the intervention logic by adding topics such as adherence; HIV-related stigma; HIV-disclosure; safer sex), pilot-testing the adapted programme and conducting a process evaluation of its first implementation. Areas added onto the original intervention's logic framework, based on social cognitive theory, the theories of reasoned action and planned behaviour were information and skills building on sexual relationships and protection behaviour, prevention of vertical HIV transmission, contraception, HIV-disclosure, HIV-related stigma, HIV-treatment and adherence. The process evaluation using mixed methods showed that we delivered a feasible and acceptable intervention for HIV-positive adolescents aged 13–17 years. The systematic approach adopted facilitated the development of a contextualized and developmentally appropriate (i.e. age-specific) intervention for adolescents living with HIV.

Key words: HIV/AIDS, adolescent, sexual behaviour, intervention

INTRODUCTION

Among all young people living with HIV globally, nearly 80% (about four million) live in sub-Saharan Africa (UNAIDS, 2012). In Eastern and Southern Africa, an estimated 1.2 million adolescents aged 10–19 years, infected perinatally, and 2.7 million young people aged 15–24 years, infected through sexual transmission, are living with HIV (UNICEF, 2011). Two Eastern African

countries, Uganda and Kenya, estimated that in 2009 46 000 and 42 000 new HIV cases occurred in the age group 15–24 years (UNICEF, 2011). HIV-incidence remains considerable in Uganda among youth—with women particularly at risk (Santelli *et al.*, 2013).

Adolescents living with HIV face many psychosocial challenges ranging from specific health care to secondary prevention needs (Gray, 2009). Because HIV is transmitted sexually, they face particular challenges in relation to their sexual and reproductive health (SRH) and stigma: this includes coming to terms with their own HIV infection, HIV-disclosure, external and internal stigma and discrimination (Petersen *et al.*, 2010), while developing a sexual self-concept (Lou *et al.*, 2011). Studies have shown that sexual risk prevention in this target group is inadequate. A recent study in Uganda found levels of contraceptive use among sexually active HIV-positive young people of 34%, and high levels of unsafe sex with 24% of the study participants using condoms consistently (Beyeza-Kashesya *et al.*, 2011), confirming earlier findings on unsafe sexual behaviour among HIV-positive adolescents (Bakeera-Kitaka *et al.*, 2008; Obare and Birungi, 2010). Studies in Kenya revealed that HIV-positive pregnant adolescent girls had difficulties accessing prevention-of-mother-to-child-transmission services (Birungi *et al.*, 2011; Obare *et al.*, 2012). HIV-positive adolescents' needs in terms of their sexual and reproductive health and rights (SRHR) have been widely ignored, most commonly they have been advised to abstain from sexual activity, which cannot be considered to be a realistic goal (Birungi *et al.*, 2009).

In resource-constrained settings, few interventions have targeted adolescents living with HIV to support them in their SRHR and various aspects of living with HIV (Lightfoot *et al.*, 2007a; Cluver, 2009; Naar-King *et al.*, 2009; Bhana *et al.*, 2014). As in other fields of HIV prevention, a number of cultural, social and institutional barriers (Fowler *et al.*, 2007) such as inadequate resources, high patient load, time-constraints and lack of specific training may have limited their development and implementation. However, interventions developed specifically for young positives in resource-rich settings (Elkavich *et al.*, 2005) cannot be simply transferred without adequate cultural adaptation, defined as being culturally responsive to the needs of a local community (Castro *et al.* 2004). As only few models exist that guide the complex adoption process (Wingood and DiClemente, 2008), interventions often were transferred from one setting to the other without considering systematic planning of the adaptation process (Leerlooijer *et al.*, 2011) resulting in limited effectiveness. Only few adaptation studies made their underpinning rationale explicit, limiting generalizability (Netto *et al.*, 2010).

This article describes the process of employing a systematic approach to develop a 'positive prevention' intervention that fits the needs of adolescents living with HIV in Eastern Africa. By positive prevention we refer to supporting HIV-positive adolescents through tailored interventions enhancing their physical, mental, emotional and sexual health, which, through the creation of enabling environments, is believed to reduce the likelihood of new HIV infections (GNP+/UNAIDS, 2011). The process of contextualizing the intervention ensures that it not only fits the target group, the setting and the wider sociocultural context, but also that crucial programme elements of the original intervention are being maintained. This is supported by the theoretical assumption that an intervention remains evidence-based, and therefore effective, if its core elements and underlying theoretical constructs are kept (McKleroy *et al.*, 2006; Lee *et al.*, 2008; Bartholomew *et al.*, 2011).

In this article, we illustrate how the systematic approach adopted resulted into a contextualized and developmentally relevant (i.e. age-specific) intervention for adolescents living with HIV in low resource settings with the aim to improve their SRHR.

METHODS AND RESULTS

Our research was guided by the US Centers for Disease Control's (CDC) map for the adaptation process (McKleroy *et al.*, 2006). It consists of distinct phases with ongoing feedback loops including the following action steps: (i) assessing the needs; (ii) selecting an intervention; (iii) adapting and preparing the programme; (iv) piloting it and (v) implementing it with ongoing monitoring. We employed participatory research throughout all adaptation phases so that programmatic decisions based on the research carried out could be tested among the target group to ensure relevance. This provided an opportunity to revisit earlier steps should problems occur, maximized the target groups' input to reach cultural adequacy and allowed for triangulation of the findings by using different qualitative assessments (as recommended by Wingood and DiClemente, 2008). Figure 1 illustrates how we adopted these distinctive steps.

Settings

We carried out research informing the intervention development in Kenya and Uganda between 2007 and 2011. We recruited study participants from HIV support and youth centers in three settings in Kenya, i.e. Asembo and Gem, two rural communities, and Kisumu, the capital of Nyanza Province. With 5.8% of adolescents aged 15–19

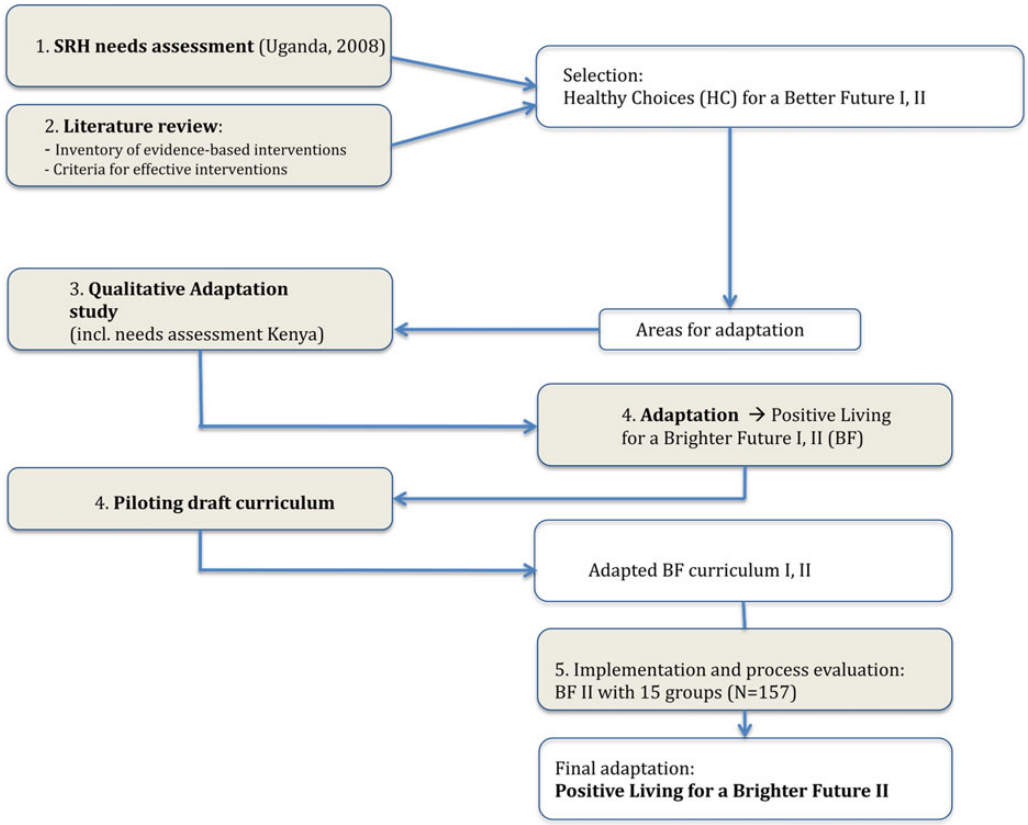

Fig. 1: Flow-chart systematic approach intervention adaptation.

years living with HIV, it is the region hit hardest by HIV in Kenya (Birungi *et al.*, 2011). In Uganda, high HIV prevalence (9.5% for women and 4.9% for men in the age groups 15–49 years old; UAIS, 2012). Here we enrolled participants through the Baylor College of Medicine Children's Foundation—Uganda, an HIV-paediatric clinic at Mulago hospital, delivering care and treatment for about 1200 adolescents and their family members. Additional recruiting sites were the community-based organizations 'Reach out Mbuya', 'Nsambya', and 'TASO', the Ugandan AIDS Support organization.

Ethical approval

For all the sub-studies conducted, we relied on the Council for International Organizations of Medical Sciences International Ethical Guidelines for Biomedical Research Involving Human Subjects for guidance on the basic principles of biomedical research, including special considerations for minors. Participants gave written informed consent/assent before data collection. In the case of minors caregivers first were asked for their informed consent and if they agreed, the minor was asked for his/her assent. An additional inclusion criterion for all sub-studies was that adolescents had to be informed about their HIV status.

We obtained ethical approval from the institutional review boards (IRB) of all institutions involved, i.e. for Kenya the IRB of KEMRI Kisumu and Nairobi and the National Ethics Review Committee. In Uganda, Makerere University College of Health Sciences, the Uganda National Council of Science and Technology and Baylor College of Medicine (Texas, US) gave ethical approval. In Belgium, approval was obtained from the Institute of Tropical Medicine's IRB, and the University Hospital Antwerp.

Step 1. Needs assessment

We conducted the needs assessments in two different steps. In Uganda, we made use of a qualitative study carried out prior to this research in the same setting. The study's objective was to assess SRH needs and problems, as well as determinates of sexual risk taking among HIV-positive adolescents aged 11–19 years old in relation to information, motivation and behavioural skills

(Bakeera-Kitaka *et al.*, 2008). The study was designed to serve as a basis for designing a positive prevention intervention. A total of 75 HIV-positive adolescents had participated in eight focus group discussions (FGDs), one additional FGD had been conducted with adult key informants (i.e. service providers). In this study, about a quarter of the young participants reported prior or current sexual experience. Findings relevant for the intervention design related to knowledge gaps in HIV transmission, reproductive health and contraceptive methods. Motivations for protection included hope for the future, good counselling and desire to avoid unwanted pregnancies, the latter being more relevant for girls than for boys. Barriers to adopt preventive behaviour were pressure by sexual partners (perceived more strongly by girls than by boys), alcohol use, peer pressure, poverty, HIV-related stigma and for the older adolescents: child desire (again, particularly relevant for girls, but also mentioned by boys). Study participants lacked specific behavioural and communication skills pertaining to safer sex practices.

In Kenya we combined the needs assessment with the qualitative adaptation study. This will be described in Step 3.

Step 2. Literature review

Our literature review focused on evidence-based and/or theory-guided interventions for adolescents living with HIV published until 2008. We included published papers in peer-reviewed journals that had either documented the theoretical underpinnings of their intervention, or that had assessed their effectiveness by measuring outcomes relevant to positive prevention (i.e. sexual health, adherence, psychosocial well-being, health-related quality of life). We identified only four published studies on interventions for young people living with HIV: the group-level intervention 'Teens linked to Care' (Rotheram-Borus *et al.*, 2001); the individual counselling programme 'CLEAR' (Lightfoot *et al.*, 2007a); the 'Hemophilia Behavioral Intervention Evaluation project' (Butler *et al.*, 2003) combining these two delivery modes; and the motivational enhancement intervention 'Healthy Choices' (Naar-King *et al.*, 2006, 2009). Because only few interventions were identified and many of the issues identified in our needs assessment overlapped with young people's SRH-related needs in general, we broadened the scope of the literature review. In a second step, we included evidence-based and/or theory-guided *primary* prevention interventions for youths living in Eastern Africa in our review. This resulted in adding an adaptation of 'Street Smart' (Lightfoot *et al.*, 2007b) and 'Healthy choices for a better future I & II' (Obong'o *et al.*, 2005) to our inventory. The latter programme concerned a combination of an abstinence-based curriculum ('Making a difference', for 10–14 year olds) and a more comprehensive SRH-intervention ('Making proud choices', for adolescents aged 14 and over; Jemmott *et al.*, 1998). We compared these interventions in terms of their general objectives, underlying behavioural theories, appropriateness of the delivery mode, targeted setting, intervention tools used, time requirements and other resources needed. Resource constraints and patient load in our settings led us to exclude individual face-to-face interventions. The remaining group-level interventions were further scrutinized by matching their content to the findings of our previous needs assessment (see step 1) and adopting the criteria of effective interventions (Kirby *et al.*, 2007). In their review of 83 studies, the authors had identified 17 characteristics contributing to effectiveness according to three dimensions: the process of intervention development (e.g. using a logic model approach; consistence with community values); the intervention's content (e.g. focusing on clear goals; creating a safe environment for the participants) and implementation aspects (e.g. training and supervision for facilitators; reasonable fidelity to the curriculum).

Applying these criteria resulted into the final selection of 'Healthy choices for a better future I & II' (HC I, HC II) for adaptation. HC I and II fitted all of the theoretical requirements. It consisted of two age-specific curricula, corresponding to adolescents' cognitive and emotional development. HC I and II were based on the same theoretical underpinnings as the original interventions, i.e. the theory of reasoned action (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980), theory of planned behaviour (Ajzen, 1985) and social cognitive theory (Bandura, 1986), which were found to be of relevance for the socio-cultural setting (Godin *et al.*, 1996). They had been rigorously evaluated and broadly replicated (Bell *et al.*, 2007), and CDC had labeled them as 'programmes that work'. Most importantly, HC I and II had previously undergone cultural adaptation to fit the local context (e.g. emphasizing contextual factors rather than individual factors for risk behaviour, replacing videos with role-play scenarios), but fidelity to the original methodologies and constructs was maintained, such as self-efficacy and perceived behavioural control beliefs. They stress the influence of the social environment and subjective norms on behaviour and as consequence observational learning, self-control and skills-training are important strategies to influence behaviour.

HC I and II had a feasible implementation time (8.5 h) and were already available in age-appropriate formats for two distinct age groups: HC I for the age group of 10–14 year old adolescents with the main objective to delay

sexual debut; HC II for the age group of 13–17 year old adolescents with the main objective to promote safer sex.

Step 3. Qualitative adaptation study

The original intervention logic of HC I and II was revised based on the needs assessment (Step 1) and the literature review (Step 2) adding topics such as HIV-disclosure, HIV-related stigma and adherence to antiretroviral treatment. We considered the latter particularly relevant since we aimed at delivering a 'treatment as prevention tool' consistent with a combination prevention approach. This preliminary intervention logic guided the qualitative adaptation study to assess the adolescents' input to inform further adaptation.

We used an inductive methodological approach and FGDs as data collection technique according to the state-of-the-art of FGD research (Morgan and Krueger, 1998). Data were collected between July and November 2009 in both countries. We purposively sampled three distinct groups of participants (adolescents aged 10–18 years, with younger and older adolescents in separate groups, caregivers of adolescents and providers of HIV-support services). All FGDs had homogenous group composition and were facilitated by trained moderators. The objectives of this sub-study were to assess the areas of the original intervention that needed adaptation (or missing areas). We used an open-ended topic guide covering seven broad themes: perception on puberty, cognitive changes, personal and community perception of life with HIV, medical aspects of living with HIV, relationships, sexuality, SRH-related needs and expectations towards a SRH-intervention. Details related to study design, analysis and specific results of this research phase have been documented elsewhere (Loos *et al.*, 2013). Applying purposeful sample and principles of data saturation resulted into a total of 28 FGDs. Coders of the different research teams analysed them independently using N-VIVO 8 software (QSR International, Melbourne, Australia), guided by analytic induction principles establishing a common data-driven codebook. Findings pertaining to SRH showed that adolescents were either sexually active or if they were not, reported intention to become sexually active in the near future. Interestingly, adults believed that only a small proportion of adolescents had had sex, while adolescents were convinced that most of their peers were sexually active. The results also showed stark discrepancies in terms of sexual norms between adult service providers, caregivers and adolescents (i.e. acceptance of sexual activity), as well as gender differences such as the pressure to proof masculinity through sex for boys, and the uptake of sexual relationships to gain financial and emotional independence. This was more pronounced for girls than for boys. HIV-related stigma and discrimination were cross-cutting issues, prevailing both in the family and the larger community. HIV-disclosure represented a major challenge, not only in the context of sexuality. In terms of delivery methods, study participants welcomed interactive methods of information delivery, practical hands-on training and fun activities such as games, quizzes and role-plays.

The following areas for adaptation emerged from the qualitative data collected: information and skills building in an overall context of adolescent sexual and peer relationships, sexual protection behaviour/safer sex focusing particularly on transactional sex in the context of poverty, contraception (on which the original intervention contained comparatively little information) and prevention of vertical HIV transmission. Areas for adaptation referring to living and staying healthy with HIV (referred to as 'positive living') included both psychosocial and medical elements: relevant background information and specific skills in relation to coping with HIV on a day-to-day basis, disclosure of HIV status to significant others, HIV-related stigma and discrimination, and information on antiretroviral treatment, healthy nutrition in a context of occasional food shortage and adherence (both information and skills building). In summary, two main areas emerged for the adaptation of the intervention content: translating the intervention content from a primary prevention intervention to a positive prevention intervention required adding HIV-specific topics relevant to the given context. Our study participants both in Kenya and Uganda grew up in poverty-ridden contexts and in HIV-affected families, confronted with a high degree of stigma and self-stigma. In addition, transferring the programme from the USA to the Eastern African context required integrating issues such as fertility-related desires, contraception and transactional sex, which for some adolescents served to gain financial and emotional independence.

Step 4. Compiling and piloting the draft curriculum 'Positive living for a Brighter Future'

In Step 4 we translated the findings of the qualitative adaption study into concrete objectives and activities with the aim to compile one coherent intervention with age-specific differentiations, i.e. Brighter Future I (BF I) for young adolescents aged 10–12, and Brighter Future II (BF II) for older adolescents aged 13–17 years old. We maintained the overall intervention logic based on the same underlying behavioural theories as in the original intervention. We added specific content-related elements and new learning objectives (as explained above). Figure 2 shows the

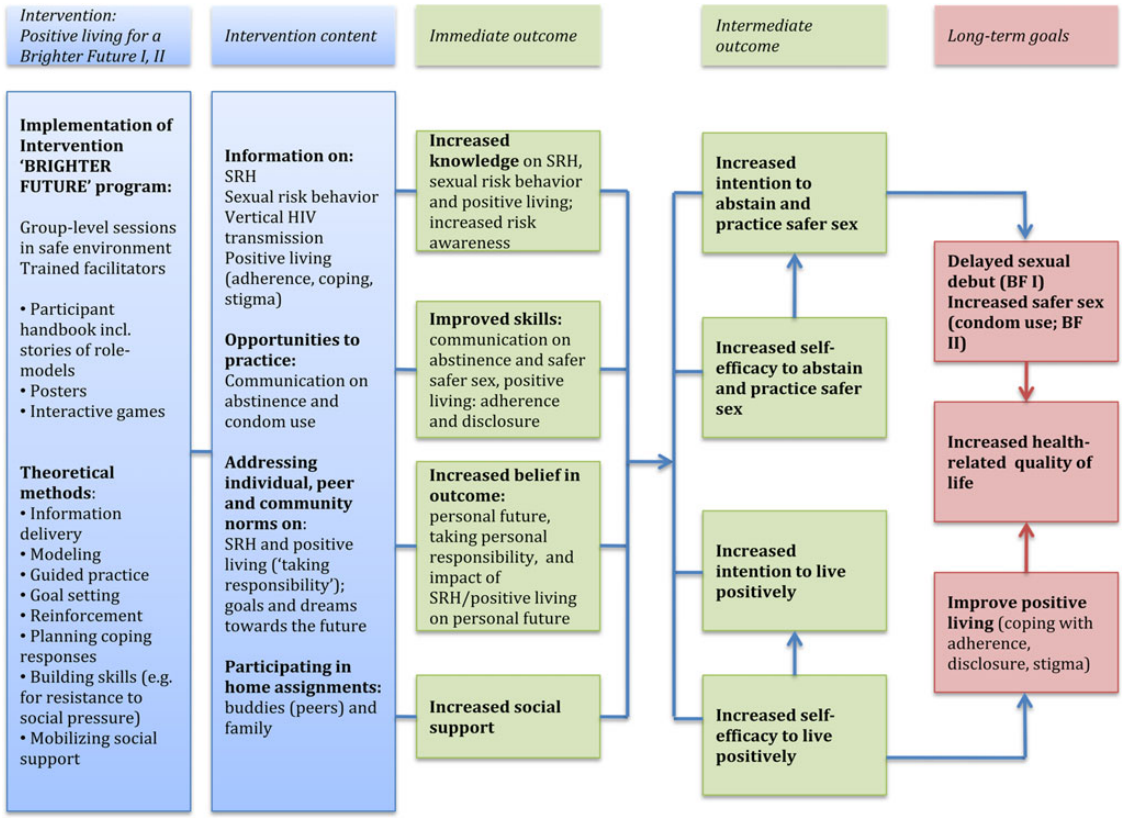

Fig. 2: Intervention logic model.

new content, which was added while the original programmes' causal mechanisms were maintained through keeping both the core content and the core pedagogical elements of the original intervention. Overall aim of the intervention was to support adolescents in increasing protection behaviour through influencing relevant behavioural determinants (by delaying sexual debut and adopting safer sex through for instance empowering them to deal with situation-specific challenges such as peer pressure and transactional sex). A secondary aim was to support adolescents to improve positive living (i.e. improved adherence to antiretroviral treatment, healthy nutrition, skills to disclose and to counteract HIV-related stigma and discrimination and to cope with self-stigma), which we hypothesized to be influenced by the same determinants (i.e. knowledge, skills, self-efficacy and intentions to protect their own health and those of their sexual partners).

The draft intervention consisted of five modules with two sessions each, to be delivered—in approximately 2.5 h per module—to mixed gender groups facilitated by a male and a female adult facilitator. Facilitators received a 20-h training. The intervention used three main learning modes, i.e. auditory, visual and practice opportunities for skills building. As indicated in Figure 2, a mix of strategies was applied to build knowledge and skills, based on the empirically validated behaviour change methods consistent with the underlying theories (e.g. goal setting, role modelling, planning coping responses). Such strategies included for instance: ice-breakers and energisers to build group cohesion; colourful posters conveying key messages through culturally relevant examples; comics and reading material featuring the intervention's three main characters (i.e. role-models with their own experiences, dreams and challenges) to build risk-awareness and outcome expectancy; group discussions to explore key messages, generate ideas and promote self-reflection; role-plays with peers to build effective communication and negotiation skills; homework assignments to provide opportunities to use new information and skills; exercises with buddies and caregivers to enhance social support (Box 1).

Box 1: Overview of Brighter Future sessions and modules

Brighter Future I	Brighter Future II
Session 1	*Session 1*
Module 1: Getting to know you	Module 1: Getting to know you
Module 2: Knowing your body and you	Module 2: Knowing your body and you
Session 2	*Session 2*
Module 3: All you want to know about HIV	Module 3: All you want to know about HIV
Module 4: Skill building for abstinence	Module 4: Skill building for safer sex practices
Session 3	*Session 3*
Module 5: Positive living (psychosocial)	Module 5: Positive living (psychosocial)
Module 6: Positive living (medical)	Module 6: Positive living (medical)
Session 4	*Session 4*
Module 7: All you want to know about pregnancy and sexually transmitted infections	Module 7: All you want to know about pregnancy and sexually transmitted infections
Module 8: Skills building for peer pressure	Module 8: Developing condom use skills (BF II)
Session 5	*Session 5*
Module 9: Enhancing refusal and negotiation skills	Module 9: Enhancing refusal and negotiation skills
Module 10: Enhancing communication skills	Module 10: Enhancing the four-step plan for disclosure

Main content differences between BF I and II related to the approach to adolescent sexuality: while BF I aimed at delaying sexual debut and thus raised awareness on sexually risky situations and promoted skills building to delay sexual onset, BF II aimed at increasing control in risky situations and at adopting protection behaviour by promoting condom use. According to the results of the formative research, challenges in relation to disclosure were prevailing for both age groups. However, BF I informed younger adolescents on the potential benefits of disclosure, by stressing confidentiality issues and the importance of an informed choice, whereas the older adolescents were offered the opportunity to practice skills building for disclosure. For both age groups, responding to peer pressure using specific communication techniques constituted a crucial programme component (Box 2).

Box 2: Example 'SWAT' technique

The 'SWAT technique', a method to increase adolescents' assertiveness and self-efficacy:

Say **NO**—Explain **WHY**—Provide **ALTERNATIVES**—**TALK** it out

Role-play: 'While they are out . . .'

Leah is at home alone while her parents are out. Her boyfriend, Walter, comes over and tries to convince her to have sex without a condom.

Effective and ineffective versions of how the story continues are presented to the group.

The following questions facilitate the group discussion:

- Was it hard to get out of the situation?
- What made it hard or easy?
- Did Leah say NO?
- Did Leah give a clear reason?
- What would you have done differently?

The BF draft curricula were compiled in English, and translated by professional translators to local languages (Dholuo for Kenya and Luganda for Uganda).

The BF I intervention was piloted in Kisumu and Gem with two groups of young adolescents (28 participants), and in Uganda one pilot-group was organized (14 participants). The BF II draft curriculum was pilot-tested with six groups of adolescents living with HIV in both countries. Pre-testing assessed implementation feasibility, and how adolescents perceived the quality of the content developed. The pilot-research adopted a qualitative approach, carrying out four FGDs in Kenya and two in Uganda. Data were analysed separately for Kenya and Uganda, using an inductive content-analytical framework. Results showed overall acceptance and feasibility. The pilot resulted into minor adaptations, mainly relating to issues of time management and emotional support for sensitive topics like disclosure.

The concrete output of this step was the production of the intervention materials: two age-specific intervention manuals for facilitators' use and the participant handbooks including culturally appropriate visualization of the learning content and home assignments.

Step 5. Implementation and process evaluation of 'Positive living for a Brighter Future II'

The process evaluation's objective was to assess overall feasibility of the intervention, and to define areas for a final adaptation of the curriculum.

At both study settings, a total of 288 participants were randomized for eventual participation in BF II. Considering their interest and practical availability, 176 YPLH aged 13–17 participated in 15 groups (eight in Uganda, conducted April–May 2011; seven groups in Kenya conducted August–September 2011). BF II was implemented during 5 weeks with weekly sessions of about 2.5 h in local settings like meeting places of support groups of people living with HIV affiliated to hospitals or churches, paediatric HIV clinics and civil society organizations involved in HIV care. In Uganda, one specific church-affiliated organization refused intervention implementation at their premises because of the intervention's focus on condom use, but referred adolescents for study participation to the paediatric services at Mulago hospital. At the end of each last session, participants were awarded a certificate of participation and received a T-shirt as appreciation for their participation.

The process evaluation

Ideally, a process evaluation should take place in combination with a randomized controlled trial to help interpret the outcome results (Oakley *et al.*, 2006); however, such a costly and time-consuming design was not feasible under this study. Thus, before being able to focus on the question 'does it work?', we needed to explore implementation issues and acceptability of the intervention.

The process evaluation adopted a mixed methods approach and took place between 09 and 11/2011 in the same settings. We conducted standardized exit interviews 2 weeks after the intervention to assess quantifiable aspects measuring overall programme acceptance, satisfaction with content and delivery methods, retain of information delivered and implementation aspects. Trained interviewers used hand-held tablet computers to conduct the exit interviews. In addition, we explored adolescents' perception of the intervention using qualitative methods. To this end, nine homogenous FGDs were carried out with adolescent participants and their caregivers (four FGDs with adolescents and one with caregivers in Kenya; four FGDs with adolescents in Uganda). To assess facilitators' fidelity to the intervention, at each session an external observer familiar with the intervention was present. The qualitative evaluation study was carried out between August and October 2011.

Results of the quantitative process evaluation

A total of 161 exit interviews with adolescents could be obtained (Uganda: $n = 89$ or 55% of the total sample; Kenya: $n = 72$ or 45% of the total sample). This sample consisted of 46% boys and 54% girls, 46% of them were double orphans, 95% enrolled in school, 76% received antiretroviral treatment at the time of data collection and 71% were member of a support group.

The overwhelming majority felt that participating in BF II was very helpful in setting clear goals for their future (Kenya: 90%; Uganda: 96%; overall: 91%); in supporting them in current or future sexual relationships (Kenya: 93%; Uganda: 91%; overall: 94%); in avoiding unwanted sexual activity (Kenya: 92%; Uganda: 93%; overall: 92.5%); in negotiating safer sex (Kenya: 82%; Uganda: 83%; overall: 88%) and in HIV-disclosure (Kenya: 90%; Uganda: 99%; overall: 95%).

BF II sessions took place in a safe environment: 94% said that they related well to the group facilitators (Uganda: 94%; Kenya: 94%). Ninety percentage of the Ugandan participants and 83% of the Kenyan participants reported that it was very easy for them to share their experiences within the group (overall: 86%). In addition, 58% (Uganda: 60%; Kenya: 46%) said that they had shared information about BF with someone else outside the group (i.e. parents/guardians: 57% in Uganda and 46% in Kenya; siblings: 25% in Uganda and 22% in Kenya; peers: 21% in Uganda and 23% in Kenya).

Delivery methods and techniques worked well: 78% said that the home assignments worked very well for them (Uganda: 76%, Kenya: 81%); 73% said the same for role-plays (Uganda: 73%; Kenya: 74%) and 66% found that the numbers of sessions were about right (Uganda: 60%; Kenya: 75%). We also tested participants' knowledge on SRH. We found that knowledge on sexually transmitted infections (STIs) was still quite low after having participated in the intervention. For instance, 36% in Kenya and 56% in Uganda (overall: 47%) of the participants believed that a person could not have an STI if he/she felt healthy.

Results of the qualitative process evaluation

According to the FGD participants, BF II had a positive impact on adherence, sexual abstinence, condom use, social support, psychological well-being and overall quality of life. The specific methods adopted to increase

adolescents' assertiveness and self-efficacy, i.e. the SWAT technique and the steps towards effective condom use were the most appreciated and most widely used strategies. The FGDs showed that BF II was perceived to be comprehensive. A wide range of aspects of SRH and positive living could be addressed and the participants were picking up topics and tools that best addressed their personal attitudes and needs. Caregivers mentioned in first place the positive impact on health behaviour, which they attributed to BF. They reported improvements in seeking medical care when necessary, but also in adherence. Caregivers recognized that adolescents took more responsibility for their own health after having completed the intervention. Study participants agreed that generally a positive approach to young people's sexuality was difficult to accept in their culture, but stressed that the intervention provided a safe space where young people were allowed to openly talk about their dreams, aspirations and fears with respect to relationships, sexuality and future parenthood as young positives. For instance, it was appreciated when facilitators approached sexuality in a humoristic yet professional manner, correcting misconceptions and passing on the right factual information. These results have to be viewed in a short-term perspective, since FGDs were held maximum 3 months after completion of the intervention. Adolescents also stressed this aspect, illustrated by the following quote: '. . . the program has taught us how to be brave and strong!' (male adolescent FGD participant, Uganda).

We used data- and methodological triangulation (i.e. across different data sources and data collection methods; Patton, 2002) to enhance the validity of the evaluation findings and to subsequently convert them into the final adaptations of the intervention: for instance, some participants and facilitators felt uncomfortable with the local language translations of terms relating to (sexual) body parts perceived to be vulgar. They preferred using English terms. These observations were confirmed in the FGDs and subsequently changed in the final intervention curriculum. The finding on knowledge gaps relating to STI, which were also corroborated by the FGDs, led to an adaptation of the STI fact sheet, provided in one of the modules.

DISCUSSION

This article describes the contextualization of an existing evidence-based primary HIV prevention programme into a positive prevention intervention for adolescents living with HIV. We aimed at further contextualizing an already adapted intervention, i.e. the culturally equivalent version for Eastern Africa based on the original intervention designed for the US context (Castro *et al.*, 2004). In line with recommendations in the literature, we paid particular attention to keeping the core elements of the original evidence-based programme unchanged, i.e. the underlying behavioural constructs and the main pedagogical elements (Wingood and DiClemente, 2008; Bartholomew *et al.*, 2011). There is wide agreement about the importance of adequately considering communities' socio-cultural contexts as a necessary prerequisite for effective interventions (Poulsen *et al.*, 2010). We accommodated this requirement by: (i) using an evidence-based intervention that was already culturally adapted to one of our implementation settings; (ii) conducting an extensive qualitative adaptation study, that carefully assessed the social, relational and personal factors which act as facilitators or barriers to HIV prevention (Hosek *et al.*, 2012). Subsequently, the major changes during the adaptation process were introduced at Steps 3 and 4, respectively, i.e. the formative research and the development of the intervention logic framework. The chosen approach is also in line with what more recently has been described in the literature as common factors in effective HIV prevention (Rotheram-Borus *et al.*, 2010). The authors stipulate that a successful intervention must do more than address a specific behaviour alone. It needs to frame its objectives in terms that help participants meet their life goals, which motivates participants to change. This can be achieved through framing the desired behavioural change within a broader transformation that allows participants to identify the potential for a new identity and social role. This is reflected for instance in the BF introductory module, when participants are encouraged to define their valued life goals and to reflect about how achieving short-term behavioural goals will enable them to pursue their personal goals and dreams. Given pressing socio-economic constraints and the context of poverty, in which adolescents living with HIV from our target group grew up, it was important that the intervention supported them in building skills for informed choices in risky contexts, e.g. in relation to transactional sex.

Our qualitative evaluation research showed that participants and their caregivers perceived the BF II programme as supportive for acquiring both new specific behavioural skills (e.g. adherence, communication about sexuality) and broader underlying constructs, such as self-efficacy. The evaluation of BF II showed the necessity of providing safe spaces enabling young people to freely discuss sexuality and related topics in a context where discussion of pleasurable and joyful sexuality is culturally difficult. Adequate training of facilitators can be considered crucial to achieve this.

Recently, several programmes encompassing broader life skills components implemented in the region have

shown the importance to include gender relations in protecting young people from HIV (UNAIDS, 2013). BF has achieved the latter partially through mixed gender-sessions that foster participants' ability to communicate with same-gender and opposite-gender peer during the group sessions (UNAIDS, 1999), and partially through sessions that create room for discussing sensitive issues relating to sexuality with peers of the same gender only.

The adaptation process reported here had also its limitations. We could only carry out a process evaluation for BF II with older adolescents. While it confirmed the new intervention's high acceptability and feasibility, it clearly does not tell us whether maintaining the core elements of the original intervention will translate to same levels of efficacy found with the original intervention. Thus, the next step should be to conduct a rigorous outcome evaluation of both BF I and II, to assess if the intervention is effective in improving SRH and positive living for all age groups. The intervention aiming at the younger age group (BF I) should also be subjected to a qualitative evaluation to gain in-depth information about its appropriateness for this age group, for instance with respect to their cognitive abilities. Furthermore, data collected for the process evaluation could have been biased by social desirability, since participants who were interviewed in the same settings in which the programme was delivered may have a tendency to underreport any negative impressions.

The final intervention reflects a consensus between the multidisciplinary teams of researchers and developers in both countries. Developing BF II in community-based and clinical settings in both rural and urban areas was meant to inform a broad future implementation. However, differences between the Kenyan and the Ugandan settings apparent in the exit interviews, likely influenced by the different study design of the respective needs assessments, may raise the question of transferability to other African settings. While the process evaluation yielded good results for both settings, an outcome evaluation with an integrated process evaluation using mixed methods will have to confirm whether broad implementation is effective across countries.

Implementing BF II revealed external obstacles in settings favouring abstinence-only approaches over a more pragmatic approach towards adolescent sexuality. This barrier was encountered in Uganda (but not in Kenya), where one church-affiliated organization found it difficult to accept prevention messages explicitly promoting condom use. Due to its comprehensive approach, BF II allows taking the diversity of the target groups and their context into account and to tailor 'realistic' prevention messages.

Clearly, some limitations of the participatory formative research have to be acknowledged (Minkler, 2004). Since there is agreement in the literature that keeping core elements of interventions is necessary to safeguard their effectiveness (Kelly *et al.*, 2000), an emphasis on these theoretical constructs may have limited the comprehensiveness of the issues mentioned by the adolescents interviewed, although our qualitative research adopted an iterative approach. In addition, issues highly stigmatized in the community were not mentioned, for instance HIV risk for young men having sex with men. Due to limited cultural acceptability, such issues could not be included in the final intervention curriculum. Our study revealed that service providers were less accepting towards adolescents' sexual activity than the adolescents themselves or their caregivers, which informed the rights-based approach underlying the intervention. This finding also stressed the need for capacity building among service providers to equip them both with a more thorough understanding of the adolescents' needs and the professional skills to deliver youth-friendly SRH services. The need for investment in adequate training of service providers has been emphasized previously (Bharat and Sharma Mahendra, 2007; Birungi *et al.*, 2009). In spite of such limitations, our study shows that the step-wise systematic adaptation approach described here resulted in a contextualized positive prevention intervention for adolescents living with HIV, which was feasible to be implemented in various HIV care settings and matched the complex needs of the HIV-positive adolescents it was intended to serve.

To sustain future implementation, a train-the trainer manual was developed by Baylor-Uganda and 32 service providers participated in a 5 days training to be able to train others in working with BF. An action plan was developed, and BF is currently rolled-out across Uganda. In Kenya, BF will be submitted for approval as evidence-based intervention, which is a precondition for upscaling.

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