

# Using intervention mapping in motivational interviewing training to improve ART uptake in Gauteng, South Africa

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# Using intervention mapping in motivational interviewing training to improve ART uptake in Gauteng, South Africa

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## Abstract

In South Africa, lay HIV counsellors are at the forefront of many HIV-related behavioural interventions. However, they have limited formal counselling training and little ongoing in-service support, leading to considerable variability in approaches to counselling. We describe the use of Intervention Mapping to develop a motivational interviewing counselling training and support program, titled “Thusa-Thuso - helping you help”, for lay HIV counsellors practising in primary health care clinics in South Africa. The program is contextually relevant, locally-produced, scalable, and is designed to impart sustained motivational interviewing counselling skills in lay HIV counsellors for improved antiretroviral therapy (ART) uptake in the universal-test-and-treat era.

## Keywords

Antiretroviral therapy, counselling, HIV, intervention mapping, motivational interviewing, treatment readiness, treatment uptake

## Background

Countries across the globe are striving to achieve universal antiretroviral therapy (ART) coverage among HIV infected individuals. In 2017, South Africa, with 7.9 million people living with HIV (Human Sciences Research Council (HSRC), 2017; Joint United Nations Programme on HIV/AIDS, 2016, 2017), adopted the World Health Organisation’s (WHO) universal test and treat (UTT) policy in order to increase ART coverage and reduce HIV transmission, aiming to achieve the UNAIDS 90-90-90 goals by 2020 (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2014; World Health Organization, 2016). Guidance for ART initiation on the day of

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HIV diagnosis was provided later in 2017 to help reduce losses to ART initiation and decrease time to viral suppression (South African National Department of Health, 2017; World Health Organization, 2017). However, despite these efforts, in 2018/2019 fiscal year, 4.6 million (58%) of HIV infected patients were receiving ART (South African National Department of Health Republic of South Africa, 2019). This shortfall in ART coverage highlights the need for novel approaches to improve the ART uptake in South Africa.

Efforts to increase ART coverage and particularly same-day ART initiation are being implemented within a constrained health system with limited human resources for health capacity (Bärmighausen et al., 2010; Hontelez et al., 2012; Katz et al., 2011; Plazy et al., 2016; The H. I. V. Modelling Consortium Treatment as Prevention Editorial Writing Group, 2012). This has led to a greater reliance on lay health care workers to perform health promotion activities (Bemelmans et al., 2016; Dewing et al., 2014; World Health Organization, 2007) including providing HIV testing, adherence support and community-based HIV care and treatment (Decroo et al., 2013; Grimsrud et al., 2016; World Health Organization, 2016). Under UTT and same-day ART initiation policies, lay health care workers are increasingly asked to support asymptomatic HIV infected patients (i.e. those with higher CD4 counts) who may not see the benefits of starting lifelong HIV treatment immediately after diagnosis (Katz et al., 2011, 2015; Plazy et al., 2016). Yet, lay counsellors have limited formal training resulting in considerable variability in skills, knowledge, and approaches to counselling (Dewing et al., 2012, 2014; Frontières, 2015; Thurling and Harris, 2012). It is, therefore, necessary to strengthen their capacity to provide patient-centred quality counselling to support ART scale-up efforts (Grimsrud et al., 2016; Moyers et al., 2016).

Motivational interviewing (MI) counselling is a directive and collaborative counselling approach that could enable lay counsellors to effectively assist patients to successfully navigate barriers to accepting and remaining

on lifelong ART (Grimsrud et al., 2016; Katz et al., 2015; Miller and Rollnick, 2003). While this approach has been previously used in substance abuse cessation programs by clinicians and psychotherapists specialists in high-income countries (Baer et al., 2004; Dewing et al., 2012; Miller and Mount, 2001; Moyers et al., 2005), MI application by lay HIV counsellors in sub-Saharan Africa is limited (Baer et al., 2004; Dewing et al., 2013; Miller and Mount, 2001; Moyers et al., 2005). Previous training of lay HIV counsellors in MI have had mixed results, suggesting a need for tailoring of training approaches and methods for this cadre of health workers (Moyers et al., 2005).

Intervention Mapping is an iterative approach to developing (Bartholomew et al., 2016) or adapting (Bartholomew et al., 2011; Castro et al., 2004) context-specific interventions, following six well-defined steps. We describe the application of Intervention Mapping to develop a contextually relevant motivational interviewing training and support program for lay HIV counsellors working in the primary healthcare setting in South Africa.

## Methods

### *Intervention mapping*

Intervention Mapping provided a framework to guide the development of a training and support program for lay HIV counsellors. It is a systematic method for the development, implementation and evaluation of health interventions grounded in behavioural theory and empirical evidence (Bartholomew et al., 2016). Intervention Mapping outlines a six-step process, using evidence and theory, starting from the needs assessment to systematically developing interventions to address the health problem. It is an iterative and cumulative process continually using outputs from preceding steps to inform subsequent steps in the process (Bartholomew et al., 2016). Step 1 begins with conducting a needs assessment focusing on the analysis of the health problem and development of a logic model of the problem. This involves the description of the

health-related problem, the at-risk population, impact on the quality of life, the environmental and behavioural factors related to the problem and their determinants. In step 2, evidence from the needs assessment is used to select the target groups and the behavioural and environmental program outcomes based on importance and changeability. Behavioural outcomes in the target population and environmental agents are subdivided into specific performance objectives that stipulate actions that need to be taken to change individual behaviour and the personal factors (i.e. determinants) making these specific actions possible and more likely. Matrices of change objectives are then produced by combining performance objectives with determinants thus creating change objectives. In step 3, theory-informed methods and practical strategies are selected and used in step 4 to produce the final intervention program. Step 5 focuses on planning program adoption and implementation and the last step is producing an evaluation plan to assess the effectiveness and implementation success of the intervention program (Bartholomew et al., 2016; Kok et al., 2016).

The application of Intervention Mapping in designing our intervention relied on stakeholder participation and engagement as well as the incorporation of theory-based behavioural change methods. We were also mindful of the target group and implementer importance in the ultimate success of the intervention. Lay HIV counsellors exist and operate within communities and organisational environments, and as such we also sought to understand and incorporate the social-ecological perspective when designing the training intervention. This involved engaging with and garnering support from district and clinic managers who oversee counsellor's operational environmental. Intervention Mapping is facilitated through core processes: posing questions, brainstorming with the planning group, reviewing findings from empirical literature, reviewing theories for additional constructs, assessing and addressing needs for new data, and developing a working list of solutions (Bartholomew et al., 2016; Ruiter et al., 2018).

## Results

### Step 1: Needs assessment

In line with Step 1 of the Intervention Mapping process, we created an intervention planning group consisting of researchers, HIV prevention specialists from a local non-governmental organisation (NGO) that provides HIV-specific technical support to primary health care clinics, psychologists, representatives from an advocacy group for persons living with HIV and a local community counselling organisation. The first and senior author of the intervention planning group were formally trained on Intervention Mapping at Maastricht University ([www.interventionmapping.com](http://www.interventionmapping.com)). The senior author also has experience in implementing motivational interviewing counselling in a study setting (Onoya et al., 2020).

*Preliminary research.* The needs assessment process included an extensive literature review to understand the landscape of counsellor skills, practice approaches, and challenges. The literature review was augmented by in-depth interviews with three clinic managers and four lay HIV counsellors of four primary health clinics in Johannesburg between October and December 2017, exploring current approaches to creating demand for uptake of ART and long-term adherence to ART (demand creation for ART) (Onoya et al., 2018). Interviews were audio-recorded, recordings were transcribed verbatim and analysed thematically using NVivo 11 (Onoya et al., 2018). We found that approaches for ART demand creation were inconsistent and counsellor dependent (Figure 1 in supplementary materials) (Onoya et al., 2018). Counsellors who had been personally affected by HIV emphasised the benefits of ART and preferred early uptake, whereas those who were less personally impacted were more concerned about preparing patients to cope with treatment challenges. The process for assessing patient readiness was poorly defined, inconsistent, and counsellor dependent. We also found that providers were unclear of the process to ensure

patients who defer treatment return for ongoing counselling (Onoya et al., 2018).

## Step 2: Program goals and objectives

Formative data collected among clinic managers and counsellors, as well as consultations with the planning group, confirmed and enriched evidence from extensive literature reviews. In addition to the previously described need to train lay counsellors on motivational interviewing, we identified critical counselling skills gaps and important factors to consider in the training program development including lack of ongoing in-service training and support. Two main program outcomes were outlined as:

1. Improved general HIV counselling skills among lay HIV counsellors;
2. Sustained motivational interviewing skills for ART and HIV care demand creation.

That way, gaps and variations in baseline counselling skills are systematically addressed and we can ensure consistency before introducing motivational interviewing counselling. The training outcomes were focused mainly on the need to improve ART uptake and retention in care among newly diagnosed HIV positive patients in South Africa.

To improve general HIV counselling skills (outcome one), we partnered with psychologist and counselling trainers and used the textbook "Elements of Counselling" (Schön et al., 2010) that targets lay counselling staff in the South African context, to strengthen key counselling skills (listening skills, reflection skills, affirming communication, open-ended questioning, and summarising) and develop counsellor resilience. To develop motivational interviewing skills (outcome two), we adapted and expanded on the Boston University Brief Negotiated Interview (BNI) training tools for adults (Bernstein et al., 2009; The BNI ART institute, 2015). Motivational interviewing is a collaborative and client-centred counselling style that makes use of basic counselling skills that trainees have experience in applying.

We proceeded to formulate performance objectives (PO), which are interim trainee behaviour targets needed to achieve the expected program outcomes (Table 1 in supplementary materials). Examples include PO 1: "*Participate in the motivational interviewing counselling training program*", which focuses on creating awareness of the intervention program among trainees and motivation for participation; PO 3: "*Practice motivational interviewing counselling skills acquired in the training program in a practice setting*" makes provision for supported modelling opportunities; and PO 6: "*Provide motivational interviewing counselling to newly diagnosed HIV positive patients according to protocol*", which makes provision for supporting the implementation of the skills acquired from the training program. POs are organised in a matrix format (Table 1 in supplementary materials) with the evidence-based determinants of each performance objective to assist in the definition/selection of appropriate training methods to include in the program. Determinants of performance objectives were identified through planning group brainstorming session asking questions regarding determinants for the behavioural outcome for our target population, that is, lay HIV counsellor motivational interviewing counselling efficacy. A preliminary list of possible determinants was drawn-up, which was refined further through evidence from the literature and applicable theoretical constructs associated with the program outcome. Determinants were graded by (1) relevance (the strength of the association with the behaviour) and (2) changeability of the determinants. For example, the age and gender of the counsellor are not changeable but are likely to have some influence on their efficacy in counselling patients who may differ from them in age and gender (Mwisongo et al., 2015). Also, low or inconsistent remuneration has been shown to negatively impact counsellor motivation, work ethic, and consequently the quality of counselling service (Black et al., 2011; Petersen et al., 2014). Remuneration change is theoretically possible but is unlikely through a training program as it requires intervention at the national level of government (Frontières, 2015).

On the other hand, knowledge and skills are critical determinants of counselling efficacy and have been found to be changeable through ongoing training, supervision, and support (Dewing et al., 2014; Msisuka et al., 2011).

Matrices of change objectives were developed by connecting the performance objectives with identified relevant and changeable determinants. These matrices guided the development of the training program, manuals, and tools.

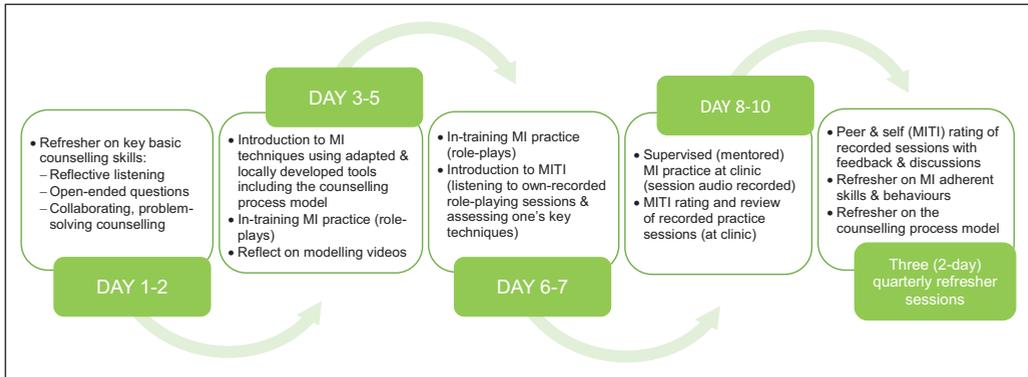
### **Step 3: Program design**

We then selected theory-based behaviour change methods that targeted the selected determinants to achieve the change objectives formulated in the matrix of change objectives (Table 1 in supplementary materials). Theories used included theories of learning (Olson, 2015), information processing (Raab et al., 2016), self-regulation, and social cognitive theory (Bandura, 1991). Since skills development generally relies on knowledge, practice and feedback, behaviour change methods applied include methods to increase knowledge, increase self-efficacy, and change attitude and outcomes expectation such as repeated exposures, reinforcement, active learning, and cultural similarity (Table 2 in supplementary materials). We also used behaviour change method to increase skills which included modelling and guided practice, applied through skills demonstration videos as well as opportunities for skills practice. To ensure contextually relevant applications of behaviour change methods used, we ensured that the training videos were conducted in the local languages, used realistic settings, using model clients, and counselling scenarios to make them more relevant and meaningful to the lay HIV counsellors (Kok et al., 2016). We also adhered to the theoretically defined conditions for the methods to be effective in translating selected methods of change into their practical application in our motivational interviewing counselling training and support program (Kok et al., 2016).

### **Step 4: Program production**

*Description of the training intervention.* The intervention planning group, in consultation with key primary healthcare stakeholders, developed a program consisting of a 10-day baseline training including three days of onsite practice (Figure 1). The 10-day baseline training consists of a five-day venue-based training, followed by a three-day onsite practice component. The onsite practice involves trainees going back to their clinic facilities to implement the motivational interviewing counselling under the supervision of members of the facilitation team. A sample of counselling sessions were audio recorded (with clients' written consent) for competency self-assessment using the motivational interview treatment integrity system (Moyers et al., 2016). The training then ends back at the training venue where the motivational interview treatment integrity (MITI) assessment is used as a training tool to help counsellors to learn self-assess and correct mistake and plan for ongoing integration of newly learned motivational interviewing skills in routine counselling practice. MITI is a behavioural coding system that assesses a practitioner's competence in motivational interviewing counselling. It is also a means of providing structured, formal feedback about ways practitioners can improve their proficiency even in non-research settings (Moyers et al.). The MITI code has shown acceptable internal consistency and reliability in evaluating specific practitioner skills relevant to the use of motivational interviewing (Moyers et al., 2005, 2008, 2016).

Consultations with the planning group, including lay HIV counsellors from the NGO highlighted how a lack of ongoing implementation support following training has led to challenges in adoption and maintenance of new skills learned (Dewing et al., 2012, 2013). Additionally, brief, once-off motivational interviewing training interventions have been shown to be insufficient in providing full competency and impacting client outcomes. Without continued practise beyond the training and in-service or follow-up training competency is likely to regress (Baer et al., 2004; Dewing et al., 2012; Miller and



**Figure 1.** Summary of the Thusa-Thuso motivational interviewing training and support program.

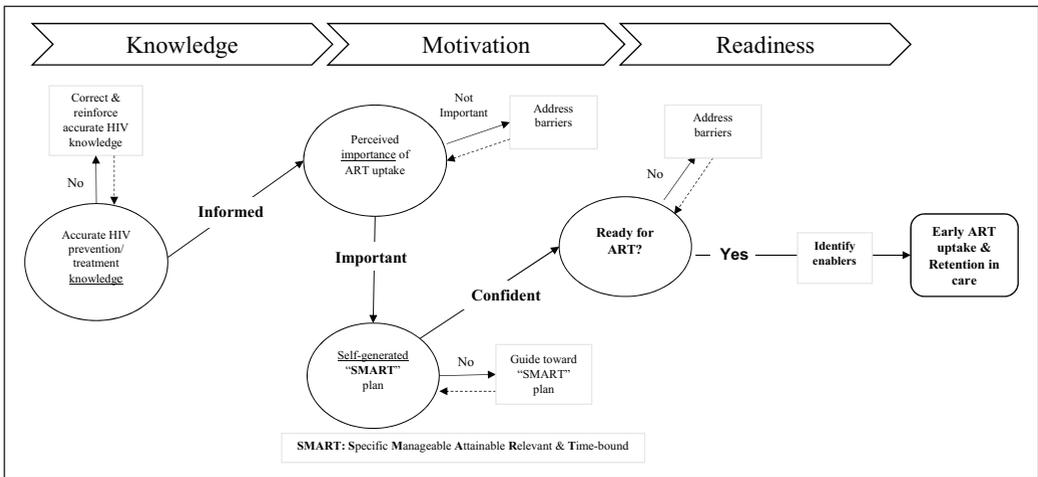
Mount, 2001). Therefore, the program includes onsite implementation support by members of the facilitation team for 12 months, and quarterly 2-day refreshers and debriefing sessions conducted in those 12 months.

Evidence gathered has shown that counsellors encounter emotionally difficult situations during interactions with clients, which necessitates emotional support or debriefing incorporated and supported through their work environment (Peltzer and Davids, 2011). We applied the improving physical and emotional states behaviour change method, a component of social cognitive theory (Bandura, 1991), by including journaling for self-care as part of our program. Self-care is taking care of one's mental, emotional, and physical health to be better able to take care of others as well. Journaling is a simple, inexpensive, and effective form of self-care which has been shown to assist in emotional healing and resilience when approached in a purposeful manner (Adams, 2013; Dimitroff et al., 2016; Pennebaker, 2004). It has been effective in addressing compassion fatigue, burnout, post-traumatic distress disorder (PTSD) among different cadres of health workers in different settings (Dimitroff et al., 2016; Pennebaker, 2004).

**Branding and theme.** We titled the program “*Thusa-Thuso - helping you help*” using Sotho, one of the local languages in Gauteng. The theme, including the logo developed (Figure 2 in

supplementary materials), which combined the skills development and wellness support components to help the lay HIV counsellors to support their clients in deciding to adopt health-promoting behaviours of initiating ART and remaining in HIV care. This was also the case for all illustrations included in the training materials, which used contextually relevant modelling scenarios for skill demonstrations role-plays. We also developed locally produced training videos modelling motivational interviewing counselling using local languages and in settings similar to their work environments, with realistic model clients, and counselling scenarios to make them more relatable to the trainees.

**The HIV treatment readiness framework.** We developed an HIV treatment readiness framework, an implementation support tool for the lay counsellor. This was formulated through a theoretical model of HIV treatment readiness we developed by integrating change theory (Prochaska and Velicer, 1997) and the theory of planned behaviour (Ajzen, 2002) to the anecdotal evidence gathered through formative research, planning group discussions, and stakeholder consultations (Figure 2). To this end, we posited that HIV treatment readiness is dependent on patients having correct knowledge about HIV disease and the benefits of early and consistent treatment. It is also dependent on patients perceiving the importance of early treatment, having self-efficacy to develop and apply a



**Figure 2.** The theoretical model of HIV treatment readiness.

“SMART” plan (Specific, Manageable, Attainable, Relevant and Time-bound) for continued engagement with the health system for HIV care, perceived readiness to apply the SMART plan, and patient awareness of and access to support (enablers) of the target behaviour.

The framework is a process model supporting decision making around requisite conditions for ART readiness with motivational interviewing counselling skills applied to move closer towards readiness to start ART. Each step is dependent on first addressing barriers or gaps identified, and reinforcing facilitators and patient self-efficacy in the preceding step before moving forward. The model is adaptable and may be used in determining readiness for other health behaviours such as condom use and other HIV risk reduction measures.

### *Step 5: Program implementation plan*

We presented the training program and implementation tools to key stakeholders including decision-makers at the district health management level, as well as to frontline health providers who are closest to the HIV testing implementation. We invited primary health care clinic managers to a workshop where we presented the training program, including implementation support tools. This consultation served

three main purposes, (1) to provide further input into intervention development, (2) to gather support from the managers as gatekeepers to the implementation level, (3) to receive input on implementation planning from managers as they oversee operations at the clinic level.

The group appreciated efforts made in the bottom-up approach to the development of the training program, particularly the extensive engagement with HIV programme implementers at different levels. They strongly supported the inclusion of the emotional support component of the intervention program, highlighting that they also don't have access to any form emotional support available to help them cope with the emotional distress they are often exposed to in their profession. They also supported the need for ongoing implementation support, highlighting its importance to sustain counsellor motivational interviewing counselling competency. Some strongly felt that the success of the program depends on it.

The managers indicated that they could not authorise the release of all counsellors for the baseline training as it would disrupt HIV testing services. However, they saw the benefit of having trained counsellors and suggested that the training could be run in two rounds, with each round including half of the counselling team.

## Discussions

We have provided a detailed description of our application of Intervention Mapping to develop a motivational interviewing counselling training intervention for lay HIV counsellors in Gauteng, South Africa. This resulted in the formation of the “Thusa-Thuso - helping you help” programme that provides training in motivational interviewing counselling, ongoing mentoring, as well as providing a scalable method for remotely counselling HIV patient to encourage retention in HIV care. We also provide support for journaling as a simple but effective self-care tool that can be used outside the training. The program also offers counsellors regular debriefing during quarterly refresher training sessions to ensure emotional support.

Members of the planning group required reorientation on the key elements of Intervention Mapping, with emphasis on the importance of evidence and theory-based decision making in the intervention development process. The Intervention Mapping steps are not necessarily sequential and therefore requires a correct understanding of the process and considerable flexibility in its application. Intervention Mapping provided a systematic approach for adapting (Leerlooijer et al., 2011; Onoya et al., 2008) the Boston University BNI Motivational Interviewing counselling training, an evidence-based intervention which has shown effectiveness in hospital emergency departments, to develop our training intervention (Bartholomew et al., 2016; Bernstein et al., 2009). While Intervention Mapping requires a commitment to the process the result is an appropriately tailored program that incorporates both theoretical and programmatic evidence as well as the expressed needs of the target population.

We found that a majority of existing motivational interviewing interventions and the BNI Motivational Interviewing counselling training materials, including training videos, were created for American populations, and mainly for substance abuse cessation programs (Stein and Lambert, 1984; Teeter and Kavookjian, 2014; van Keulen et al., 2011). It

was apparent that South African lay HIV counsellors did not relate to the modelling scenarios and personalities portrayed in these training videos, who do not look or sound like them. We used theory and evidence to adapt training and implementation tools for the program for the local cultural context. Adaptations we made include adjusting the readability level of English training materials; translating materials to spoken Zulu and Sotho to ensure easy understanding; anchoring the training around interactive sessions to build motivational interviewing self-efficacy, use visual modelling by local trainers, locally produced videos with contextually relevant scenarios, and implement in-training role plays.

Motivational interviewing is a key aspect of our counselling intervention. It is a patient-centred, goal-oriented counselling approach that seeks to help the client resolve barriers to behaviour change (Miller and Rollnick, 2003). With changes in HIV treatment policy, counsellors will increasingly encounter patients who may be ambivalent about starting ART. Our adaptation of the Boston University BNI algorithm and tools focused on preserving core elements of the original program which were key in its effectiveness (Bartholomew et al., 2011). The algorithm provides a summary of motivational interviewing counselling (Rollnick et al., 1992), and its brevity made it easily adaptable to guide lay HIV counsellors to enhance patients' motivation to take up ART treatment. We developed a readiness process model, an implementation support tool to guide counsellors in the application of motivational interviewing counselling for ART uptake and retention in care.

Through our experience in using Intervention Mapping, we came to recognise the importance of ongoing key stakeholder engagements. This included program implementers, whose contribution is important not only because they are most knowledgeable regarding frontline conditions for implementation, but also because they are the ultimate users of the intervention. This makes getting their buy-in and support for the intervention critical for successful implementation. We

organised a stakeholder workshop with facility managers of selected primary healthcare clinics and introduced them to the training program, including implementation support tools as well as the process we undertook to develop the program.

The inclusion of an evaluation plan ensures that the effectiveness of the intervention will be measured systematically by gathering evidence from implementation. This will also provide an opportunity to make any necessary updates to the program to improve its impact as well as strengthening adoption beyond the planned sites for evaluation.

### Limitations

Since this paper does not present evaluation data, we cannot, at this stage, draw conclusions on the effectiveness of the intervention in increasing lay HIV counsellor motivational interviewing skills or ART uptake among HIV patients. However, the face validity data obtained from primary healthcare stakeholder engagement and the various consultations indicate the demand for such training, its relevance and early satisfaction with its content.

### Conclusion

Even with challenges encountered during the application, Intervention Mapping offered a structured, evidence-based framework for developing our training and support intervention. The final product is relevant to the context and the target population, with training components that reflect the program's purpose and intention to strengthen lay counsellors' motivational interviewing counselling skills to improve ART uptake and retention in HIV care. Plans are underway to evaluate this program using a cluster-randomised approach in South Africa.

### Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Ethical approval

The study was approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand (M170579).

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### Supplemental material

Supplemental material for this article is available online.

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