

*Training tomorrow's global health leaders:  
applying a transtheoretical model to identify behavior  
change stages within an intervention for health leadership  
development*

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*Abstract: Training health professionals in leadership and management skills is a key component of health systems strengthening in low-resource settings. The importance of evaluating the effectiveness of these programs has received increased attention over the past several years, although such evaluations continue to pose significant challenges. This article presents evaluation data from the pilot year of the Afya Bora Fellowship, an African-based training program to increase the leadership capacity of health professionals. Firstly, we describe the goals of the Afya Bora Fellowship. Then, we present an adaptation of the transtheoretical model for behavior change called the Health Leadership Development Model, as an analytical lens to identify and describe evidence of individual leadership behavior change among training participants during and shortly after the pilot year of the program. The Health Leadership Development Model includes the following: precontemplation (status quo), contemplation (testing and internalizing leadership), preparation – (moving toward leadership), action (leadership in action), and maintenance (effecting organizational change). We used data from surveys, in-depth interviews, journal entries and course evaluations as data points to populate the Health Leadership Development Model. In the short term, fellows demonstrated increased leadership development during and shortly after the intervention and reflected the contemplation, preparation and action stages of the Health Leadership Development Model. However, expanded interventions and/or additional time may be needed to support behavior change toward the maintenance stages. We conclude that the Health Leadership Development Model is useful for informing health leadership training design and evaluation to contribute to sustainable health organizational change. (Global Health Promotion, 2014;21(4): 24–34)*

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## Introduction

The training and education of medical and nursing health professionals in sub-Saharan Africa has been identified as a global health priority (1,2). Strengthening leadership capacity in addition to more traditional clinical skills has received considerable attention since the global scale-up of HIV/AIDS funding and services (3–5). Leadership training programs for nurses and doctors are seen as a means of improving the work environments in health systems, which can improve health worker retention as well as health outcomes for patients. However, assessing the effectiveness of training programs in general can be very complex because individual outcomes can be so far downstream from the training intervention (6,7). Evaluating outcomes from leadership training is especially challenging, as gaining leadership skills is a developmental process (10,11). Despite these challenges, the necessity of documenting whether participants are learning from training interventions, and whether they are able to apply and adapt management and leadership concepts and skills to multiple settings remains (8,12–16). Using behavior change theory is one approach to assess leadership development among health professionals.

## Transtheoretical model of behavior change

A transtheoretical model is a five-stage health behavior change model that moves an individual from inaction to maintenance of healthy behavior (17). Participants move through precontemplation, contemplation, planning and preparation, action and maintenance successively as tools are added at each stage to support an individual in their health decision-making. This model has been applied to health and wellness interventions (i.e. smoking cessation, cancer education) as well as individual leadership and organization change (18–24). The transtheoretical model has thus been shown to be highly adaptable to a broad range of training interventions to understand how participants develop and retain the desired behavior, skills and self-efficacy, including leadership self-efficacy.

In this article, we describe the Afya Bora Fellowship, an international training intervention for health leadership behavior change. Then, we present our methods and adaptation of the

transtheoretical model, called the Health Leadership Development Model, as an analytical lens to identify and describe evidence of individual health leadership behavior change among training participants during and shortly after the pilot year of the program. Three stages of the Health Leadership Development Model are described using the data collected from participants. We conclude with a discussion of the applicability of the transtheoretical model to health leadership training interventions that seek to improve individual leadership in order to build better health organizations.

## Afya Bora Fellowship

The Afya Bora Fellowship is a product of the Afya Bora Consortium. The Afya Bora (Kiswahili for Better Health) Consortium resulted from the collaboration of four African and four US universities to effect leadership behavior change among participants who would catalyze and support the long-term improvement of health institutions (Figure 1) (3). The training program was designed for both African and US doctors and nurses, with the majority coming from African countries. Participants were recruited through listserve announcements, notices at consortium universities, announcements within professional and colleague networks and posting of program information at Ministries of Health. Applicants were evaluated based on their record of achievement, commitment to public health/global health, leadership potential, institutional support and communication skills. A cohort of 18 African and three US medical postgraduates, postresidency physicians and master's-level nurses were selected to participate in the pilot training intervention (Table 1).

## Afya Bora training intervention components

The training program included three components: six weeks of classroom-based training, a six-month practicum experience and mentoring. The classroom-based training component was offered at African partner academic institutions and included the following weeklong modules: Leadership, Communication, Project Management, Health Information Systems, Monitoring and Evaluation, and Implementation Science. Each module maximized opportunities for case-based teaching and hands-on activities.

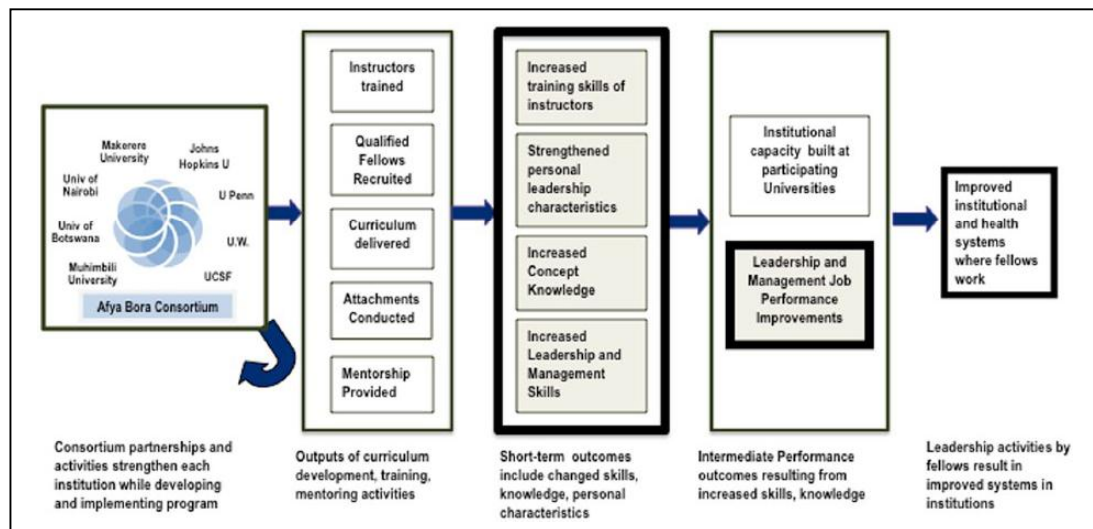


Figure 1. Afya Bora consortium logic model.

Table 1. Afya Bora consortium pilot year fellows.

Country	Nurse fellows		Medical doctor fellows	
	Female	Male	Female	Male
Botswana	4	0	0	0
Zambia	3	0	1	3
Uganda	2	1	0	1
Tanzania	0	0	0	4
USA	3	0	0	0
Total	12	1	1	8

The second component of the fellowship was a practicum experience where fellows applied the leadership and management skills they learned in the modules. The practicum included projects in the four African host countries: four non-governmental organizations (NGOs), three governmental organizations, and two academic institutions. Half of the participants completed a practicum in Project Management, 20% in Monitoring and Evaluation and the other project areas were Health Training, Disease Prevention and Human Resources Management. The third component of the fellowship included ongoing mentoring. Each participant had two mentors, a primary mentor based at an academic

institution and site mentors who worked with the fellows on a regular basis at the attachment sites. The mentors' role was to facilitate fellow learning and career development.

## Methods

We used multiple methods to capture leadership behavior change among the fellows during and shortly after the fellowship intervention, including journaling, surveys and semi-structured in-depth qualitative interviews. Fellows submitted weekly journal entries during their practicum experiences. This activity allowed evaluators to document participant learning and leadership behaviors (16,25,26). Fellows also completed post-fellowship surveys where they self-assessed their leadership and management knowledge and skills before and after the fellowship. Retrospective self-assessment scores are often considered more accurate than true pre- and post-assessments, since after the training or workshop, the trainee has a better grasp of the breadth of material in that learning domain (28). Finally, we conducted in-depth interviews with 14 fellows using a semi-structured instrument three months after the intervention. The interviews were designed to assess how fellows were applying the skills they had gained during the training intervention now that they were back at their home institutions.

Table 2. Health Leadership Development Model.

Stage	Afya Bora health leadership behavior
Stage 1: Precontemplative status	<ul style="list-style-type: none"> <li>• Unawareness of leadership behavior in self and others.</li> <li>• Limited interest in developing leadership skills.</li> <li>• No interest or understanding of mentoring.</li> </ul>
Stage 2: Contemplative testing and internalizing leadership	<ul style="list-style-type: none"> <li>• Awareness of different leadership behaviors.</li> <li>• Realizing role of self in leadership.</li> <li>• Interest in developing leadership skills.</li> <li>• Learning about mentoring.</li> </ul>
Stage 3: Preparation moving toward leadership	<ul style="list-style-type: none"> <li>• Understanding limitations of personal leadership behaviors.</li> <li>• Acquiring knowledge about new ways of leading and testing these leadership behaviors.</li> <li>• Recognizing the utility of professional mentoring.</li> </ul>
Stage 4: Action leadership in action	<ul style="list-style-type: none"> <li>• Making changes in one's leadership behavior.</li> <li>• Noticing positive working relationships and wanting to sustain these.</li> <li>• Reducing negative leadership experiences.</li> <li>• Continuing to develop these leadership behaviors through single workshops and seminars.</li> <li>• Initiating and using mentoring for single issues or needs.</li> </ul>
Stage 5: Maintenance effecting organizational change	<ul style="list-style-type: none"> <li>• Developing and implementing a mentoring plan.</li> <li>• Developing and implementing a training or professional development plan.</li> <li>• Leadership knowledge sharing with others.</li> <li>• Interrupting negative leadership.</li> <li>• Developing new health programs.</li> </ul>

Adapted from Isaac et al. (20).

The data from these three sources were analyzed separately to understand learning at different time periods during and after the intervention. A textual analysis was used with the journal and interview data, which was open-coded for themes reflective of leadership and management content from the modules, instances where fellows reported observing relevant leadership and management behaviors at attachment and work sites, and reports of their own application of leadership and management skills (10,28–30). Survey data were analyzed using Excel. After reviewing the results of the three data sources and time periods, we compared this data to the transtheoretical model stages to see if we could use it to categorize behavior change among the participants.

Finally, building on work by Isaac et al. (20), we adapted the stages of the transtheoretical model to the Afya Bora training program to create the Health Leadership Development Model (Table 2). The practice of developing or applying a theoretical model to existing data is common in qualitative

research, allowing researchers to conceptualize processes and build models in order to interpret the data more effectively, and then make adjustments in the model as needed if additional data are collected (31). The Health Leadership Development Model outlines five stages of leadership development for nurses and doctors who are being prepared to take on increased leadership roles in a wide range of public health institutions. These stages include the following: precontemplation (satisfied with the status quo), contemplation (testing and internalizing leadership), preparation (moving toward leadership), action (making changes in leadership practices), and maintenance (affecting organizational change).

## Results

Fellows demonstrated efficient progress along the contemplative, preparation and action stages of the Health Leadership Development Model during and after the intervention. None of our evaluation data

reflected the precontemplation stage fellows already had some form of leadership or management experience before entering the training program and were able to clearly articulate a desire to improve their leadership skills in their application materials. In addition, our data did not indicate participants were at a maintenance stage, either during or three months after the training program.

### Testing and internalizing leadership (contemplative stage)

Journal entries written early in the program allowed evaluators to see whether participants were adopting leadership and management concepts and skills. The analysis showed that participants were realizing the utility of these new concepts and testing them during their attachment experiences. We present two examples of journal entries below that illustrate the leadership behavior change common to fellows during their practicum experiences.

*With this project that I am participating in, I am able to internalize the process of project management. The project is giving me an opportunity to practice what I did in the classroom. I am learning a lot about communication during staff meetings, as each employee is expected to announce any important information that they think others need to know about it. (Nurse)*

*We learned in class that during consensus building it is important to agree on what needs to be achieved and also make an agreement on ground rules. Since I participate in building consensus among the study team, this has provided guidelines in that we are having the community interviewers agree to conduct at least two interviews daily and have a debriefing session at the end of day. (Doctor)*

*The nurse, who wrote the first journal entry above, was assigned to a NGO for her practicum. During the class modules, she learned about project management and communication, which was later applied in the practicum setting. In particular, the fellow observed a new way of engagement in staff meetings experienced at the attachment site. During*

*these meetings, the fellow was encouraged to share updates on her project as well as listen to others share the same information. She was able practice her communications skills and to learn from others as a step toward internalizing the benefits of communication in a work setting.*

*In the doctor's journal entry, above, he discussed his role in research coordination during his attachment experience. He linked his classroom training with his experience in a consensus building process for his attachment site project. While participating in the consensus building process, the doctor outlined his contribution to the research study procedures, which led to his increased role in the project. The doctor learned consensus building as a concept in the modules, and it was at the attachment site for his practicum that he learned when to recognize, participate and value this concept in a team setting.*

*All fellows had mentors who could support them in bridging the conceptual knowledge from the module portion of the training to testing and internalizing the utility of leadership behavior through the attachment site experience.*

*I have improved a lot in my leadership skills and this I owe to my site mentor. (Fellow journal entry, Practicum week 1)*

*I had a short teaching by my mentor on program management. I gained knowledge and skills on ways to ensure project sustainability, budgeting and team work. (Fellow journal entry, Practicum week 1)*

*My mentor helped me learn how to listen to others her approach makes one feel at home that then provides an environment for sharing information which was very informative for me. I now believe I can listen to people by creating an environment to aid positive communication. (Fellow journal entry, Practicum week 12)*

*These excerpts are from three different participant journals, and are illustrative of the increased role and value mentors had over time among participants in the training. Each fellow discusses how mentoring supported the development of a specific skill that had been covered during the classroom sessions. As the training progressed over time, participants provided*



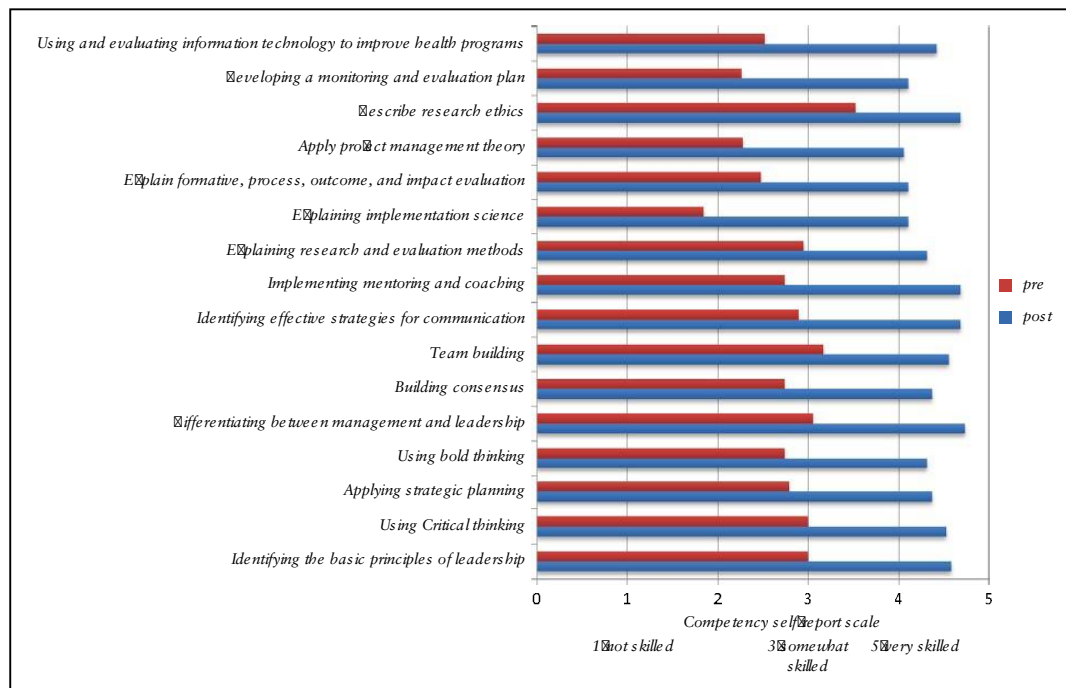


Figure 2. Self-assessment of leadership skills pre-post fellowship.

increased detail about their mentoring experience. Thus, with mentoring support over the first few months of the intervention, we began to see participants move from the contemplation to preparation stage along the health leadership development model.

**Moving toward leadership (preparation stage)**

During this stage fellows became more practiced at applying new leadership skills at attachment sites. Practice opportunities enabled fellows to build their confidence in their own leadership capacity and personal leadership styles. They were also able to recognize the limitations of their own leadership behaviors.

At the end of the fellowship year, participants completed a retrospective self-assessment, reporting leadership competencies gained overall using a five-point Likert scale (Figure 2). Results from this survey showed participants reported a 1.8 increase on average across all measures from the pre- to the post-test. The job-related skill of explaining implementation science increased the

most from a mean of 2 to 4 (23%). Two other tasks with significant increases in knowledge and skills were implementing mentoring and coaching and using and evaluating information technology to improve health programs with 23% and 10% self-reported increases in knowledge and skills, respectively. As a group, participants moved from contemplation to preparation for health leadership during the training program. The end-of-fellowship survey showed that participants believed they understood key leadership and management concepts, that they had significantly developed their skills and that they could apply these concepts and skills in their work setting.

**Leadership in action (action stage)**

In this stage participants described what they learned in the program and how they applied that learning in their work setting post-training. Three months after the fellowship ended, in-depth interviews were conducted with participants to identify short-term leadership behavior change. The

interviews encouraged self-reflection and asked fellowship participants to provide concrete examples of whether and how they were applying the Afya Bora classroom training and experiential learning from the mentored practicum. We provide two participant cases, one from a doctor and one from a nurse, that illustrate typical health leadership behavior change examples among participants.

#### Case I: cervical cancer prevention leadership

An African doctor participant discussed her role in developing a cervical cancer screening project in a clinic located in a Nairobi slum. The doctor was concerned that low income and poor women living in Nairobi slums were not getting a simple screening test as a basic prevention for cervical cancer. The doctor wanted to engage colleagues in conducting cancer screening for these women. This project originated as an attachment project and later evolved into a longer-term project after participating in the training intervention. The interview excerpt below summarizes the application of leadership skills to implement the project, and how they saw these skills influence behavior change among others and self.

##### Value of Course Materials:

One of them I return to is leadership. There are several good books like Nelson Mandela and Wangari Maathai. She is a leader in her own way. She can improve things in her own style. Leadership has been key in terms of how do I really get things moving.

##### Leadership Change (Others):

Initially, it was an uphill task. One, it meant work for the staff and nothing seen as value added for them. Two, people didn't know why they needed the training. But after training and several discussions and after several screenings where it was shown that there were many cases of dysplasia, even some with frank cervical cancer, people started to change. They wanted to participate in getting women screened.

##### Leadership Change (Self):

Sometimes we are looking for the BIG things, but it is the small things that really work. What I

mean is that we have everything we want, but we still imagine someone coming here and starting up a screening project. But in actual sense we have everything to do that actual screening. And help others see it differently and what is the worth of doing it.

This participant identified course materials from the intervention that informed her ongoing development in health leadership, and she referenced the important ongoing support her mentor provided in helping her implement the project. She stated that "My primary mentor was an obstetrician like myself. He would sit down with me to figure out what needed to be done on the project." This participant valued the fact that her primary mentor worked in the same field as herself, and she felt this commonality facilitated their open communication and regular meetings in order to move the project forward. As she reflected on her training experience during the interview, she focused on how she developed communication skills with staff in order to implement cervical cancer screening. Specifically, she used her new communication skills to convince staff of the importance of cervical screening, and she used her management skills to identify the need for additional staff training so they could complete the screenings appropriately as well as utilize monitoring data for decision-making. As a result, the doctor noticed that there were behavioral changes among the staff as they became more engaged in additional training to support cervical cancer screening. Further, as the fellow reflected on the work needed to expand the project, self-efficacy was demonstrated by her belief this could be done using resources already available locally. The Afya Bora leadership training had increased her confidence to address health issues directly rather than wait for others to respond to community needs.

#### Case II: leadership change

An African nurse participant discussed leadership change at the nurse's own hospital during the three months after the Afya Bora training intervention. Here, she discusses how her training informed her responses and role during the leadership change, which was initially viewed negatively by some of the nurse's colleagues.

*Opportunity for Change:*

*In my organization, we have a new director who was not a clinician. Previously, we had a director with a medical background. I kept on pointing out that although it is hospital it is an advantage to have someone with experience outside their medical perspective. I told them to give him a chance. As a result, stress level is down and people are happy.*

*Skill Development:*

*It was in communication. I used to be a bit of a bad communicator and reserved and shy. After this practice training intervention I can speak in front of people and communicate clearly. It was very interesting to me.*

*The nurse reported being a better communicator after the Afya Bora training, and provided an example of new leadership to show this behavior change. At the follow-up work, there was concern that the new director would not be effective because he did not have a medical background. However, the nurse described talking with all the nurses and stating that in spite of his lack of clinical training, he deserved a chance in his new role, and that he might bring important non-medical skills to the position. As a result, the other nurses gave the director an opportunity to prove that he brought other skills to the position. This ultimately reduced stress at work, especially as the new director addressed resources challenges, as the nurse explained later in the interview.*

*This fellow was able to reflect on her leadership skills before the intervention and demonstrate an action stage at three months post-intervention. Her reflection included the value of mentoring. She explained:*

*The mentoring was of so much value. If I was just did a practicum at the NGO and had to learn by myself, I wouldn't learn a lot without a mentor. They are training you. For example you may not have seen noticed a decision in a meeting and then they mentors explain like, did you notice this*

*Here, the participant summarizes the value of mentoring by highlighting the role of mentors in professional development. She found that her*

*mentors helped her notice how decisions are made within meetings, highlighting different ways of leading within diverse settings. Similar to the previous case, this participant stated that mentoring was necessary for their leadership development.*

*These two cases reflect experiences common to other participants at this post-intervention time. Participants were applying their skills in the work setting within specific contexts, such as ongoing projects and one-time occurrences such as facilitating leadership change. However, they were not yet creating professional development plans for additional training or mentoring to support their ongoing leadership development. These steps would have reflected the maintenance stage of the Health Leadership Development Model.*

**Discussion**

*This article describes the adaptation of a transtheoretical model for behavior change as the Health Leadership Development Model, similar to the work conducted by Isaac et al. (20). We were interested in knowing if this adapted transtheoretical model could help us evaluate the leadership behavior change of Afya Bora fellows during and shortly after their training. We focused on three distinct time periods for analysis: during intervention, completion of intervention and three months post-intervention. While the transtheoretical model has most commonly been applied to health and wellness interventions (1-12,21,22,24), its application in this study adds to the literature showing that a staged model of health leadership behavior change is an effective tool to evaluate such training interventions. Specifically, we conceptualized leadership development as a staged process of change where individuals gain skills and apply these skills with mentoring support over seven months, and then begin applying these skills outside of the training context.*

*Our analysis showed limited evidence that participants reached the maintenance stage of the health leadership model. It is possible that the evaluation activities at three months post-fellowship did not allow fellows enough time to reach this stage. Alternatively, it may suggest that the ability to effect sustainable organizational change may require expanding the post-training interventions to support*



individuals as they move into the action and maintenance stages or to include organizational development interventions to provide individuals with more support to act as change agents. At this time, Afya Bora includes web resources and professional networking for participants intended to foster further development and maintenance of positive health leadership practices. The potential for Afya Bora to achieve its end goal of strengthening health institutions and systems may depend on fellows achieving this stage.

The increased global focus on African nurse and doctor leadership development training (3–5) requires evaluators to develop and adapt tools and frameworks to assess the effectiveness of such training. However, the challenge remains that leadership is a developmental process, which makes leadership difficult to assess with uniform measures (10,11,32). A 360° feedback approach (in which standardized feedback is requested from superiors, colleagues and direct reports) is very frequently used to assess leadership skills in the United States and Europe (33). However, such an approach is less applicable in low-resource settings where such feedback is not routinely asked nor given, and where there is very high staff turnover.

As leadership programs are increasingly more holistic, focused on challenging experiences, knowledge acquisition, skill development and solving real problems as they arise over time (10), it is important that evaluation methodologies likewise allow for individuals to self-identify outcomes that emerge from their own experiences, settings and challenges. The proposed Health Leadership Development Model provides a staged framework that can guide comparability across training cohorts and track their leadership development longitudinally, while accommodating the variability produced by self-assessment and self-reflection measures of behavior change.

A few limitations should be noted for this evaluation. Firstly, all of the data is self-reported and there is a positive bias in reporting what fellows observe and do. Secondly, the self-report methodologies produced a wide range and depth of data, leaving a lot of room for interpretation. Although challenging for data synthesis, we believe the methodologies used accommodated the diversity of Afya Bora fellows who come from a range of backgrounds, diverse countries and

organizations, and who undertook the training with diverse practicum experiences. Thirdly, this article represents data analyzed from a pilot version of this training program that since has been adapted and implemented in subsequent years. Analysis across multiple years is needed still to understand how the training influences participant leadership behavior change over the long term in order to fully understand the applicability of the Health Leadership Development Model, especially within the last stage.

## Conclusion

Training interventions such as the Afya Bora Fellowship are part of the long-term global strategy to support human resources for health. Nurses and medical doctors often find themselves in leadership positions where they want to effect change within the health care facilities or systems where they work, but do not have the training and experience to effectively catalyze that change. Through engaging nurses and medical doctors in leadership and management training, programs such as Afya Bora hope to increase individual leadership capacity, which will in turn contribute to improving health systems. Therefore, evaluating whether and how individual leadership development progresses is an important step in the larger process of evaluating the importance of such training to improving health systems. This article contributes to the training and leadership program development and evaluation literature by demonstrating how the Health Leadership Development Model could be applied to such programs. We believe that this is the first time that a transtheoretical model has been adapted with defined stages for an international health leadership program.

## Conflict of interest

None declared.

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