

# Sim for Life Foundations: A Simulation Educator Training Course to Improve Debriefing Quality in a Low-Resource Setting

## A Pilot Study

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**Introduction:** Despite the importance of debriefing, little is known about the effectiveness of training programs designed to teach debriefing skills. In this study, we evaluated the effectiveness of a faculty development program for new simulation educators at Mbarara University of Science and Technology in Uganda, Africa.

**Methods:** Healthcare professionals were recruited to attend a 2-day simulation educator faculty development course (Sim for Life: Foundations), covering principles of scenario design, scenario execution, prebriefing, and debriefing. Debriefing strategies were contextualized to local culture and focused on debriefing structure, conversational strategies, and learner centeredness. A debriefing worksheet was used to support debriefing practice. Trained simulation educators taught simulation sessions for 12 months. Debriefings were videotaped before and after initial training and before and after 1-day refresher training at 12 months. The quality of debriefing was measured at each time point using the Objective Structured Assessment of Debriefing (OSAD) tool by trained, calibrated, and blinded raters.

**Results:** A total of 13 participants were recruited to the study. The mean (95% confidence interval) OSAD scores pretraining, posttraining, and at 12 months before and after refresher were 18.2 (14.3–22.1), 26.7 (22.8–30.6), 25.5 (21.2–29.9), and 27.0 (22.4–31.6), respectively. There was a significant improvement from pretraining to posttraining ( $P < 0.001$ ), with no significant decay from posttraining to 12 months ( $P = 0.54$ ). There was no significant difference in OSAD scores pre- versus post-refresher training at 12 months ( $P = 0.49$ ).

**Conclusions:** The Sim for Life Foundations program significantly improves debriefing skills with retention of debriefing skills at 12 months.  
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**Key Words:** Debriefing, simulation, faculty development, training, feedback.

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Effective debriefing promotes knowledge and skill acquisition during simulation-based education.<sup>1</sup> Skilled educators facilitate debriefings that enable learner self-reflection while guiding team members to identify and close performance gaps.<sup>2–4</sup> Simulation educators can acquire debriefing skills through a variety of different avenues—courses, conferences, advanced degrees, or workplace-based learning.<sup>5</sup> Although initial training may prove beneficial in the short term, educators risk losing facilitation skills without ongoing faculty development. There is little evidence describing how a faculty development program should be structured to support the acquisition and retention of debriefing skills.<sup>5</sup> It is also unknown whether refresher training is required to prevent skill decay. This issue is of particular relevance to simulation programs in countries where resources are scarce.<sup>6,7</sup>

Ensuring high-quality simulation education and debriefing is particularly important in Uganda, where mortality rates are high and healthcare providers have infrequent opportunity for

simulation-based education.<sup>8–10</sup> Standardized training programs such as Helping Babies Breathe can help improve the quality of care for newborns<sup>11–13</sup> but enhanced access to simulation-based education is required to support widespread adoption of practice-changing measures. At the Mbarara University of Science and Technology (MUST) in Mbarara, Uganda, a new simulation program was launched in 2016 with the goal of supporting the implementation of simulation-based education across all levels of training. This required building a new simulation facility, developing curricula, and recruiting faculty to become simulation educators. A core component of this program was to train local faculty to become effective debriefers. Given the lack of local expertise in simulation education, we sought a collaboration with international experts to build a new simulation educator faculty development program.

National culture can influence patterns of thinking and behavior in groups of people native to that country.<sup>14,15</sup> Hofstede and Bond<sup>14</sup> describes 6 dimensions of national culture, of which the power distance index (PDI) has been identified as a key variable influencing the nature of discussion during debriefing.<sup>15,16</sup> The PDI has been defined as “acceptance of inequality in distribution of power in a certain society.”<sup>14</sup> High PDI countries (eg, China, Korea) have societies that extol hierarchy, whereas low PDI countries (eg, Israel, Norway) have limited dependence of subordinates on superiors. Empiric research suggests that Uganda has a low PDI (PDI = 38), which is similar to the PDI of Germany and the United States.<sup>17</sup> Central in our efforts to contextualize the debriefing course was teaching conversational strategies aligned with the PDI of Uganda. A better understanding of how contextualized simulation educator training impacts debriefing skills informs the future design of faculty development initiatives around the world.

In this pilot study, we aimed to evaluate the effectiveness of a culturally contextualized simulation educator faculty development program for educators in Uganda by measuring debriefing skills pre- and post-foundational debriefing training. Our secondary objective was to determine whether refresher training in debriefing at 12 months results in further improvement of debriefing skills in the same group of simulation educators.

## METHODS

We conducted a single group, prospective, observational pilot study at the MUST from March 2017 to August 2018. Ethical approval was secured from the research ethics board of MUST and the University of Calgary. Informed consent was obtained from all participants. We used established simulation-based research methods to minimize potential confounders and report our study in accordance with reporting guidelines for simulation-based research.<sup>18</sup>

### Study Participants

Participants were recruited from the faculty of medicine at MUST. Participants were eligible for inclusion if they were attending physicians, nurses, midwives, clinical officers, or other independent healthcare practitioners who had interest in becoming a simulation educator. A total of 36 MUST faculty

were eligible for inclusion in the study. Participants with known interest in medical education or simulation-based education were identified by department heads or faculty leaders as being suitable for participation. Undergraduate trainees (ie, nursing and medical students) were not eligible to be participants. There were no other exclusion criteria for this study.

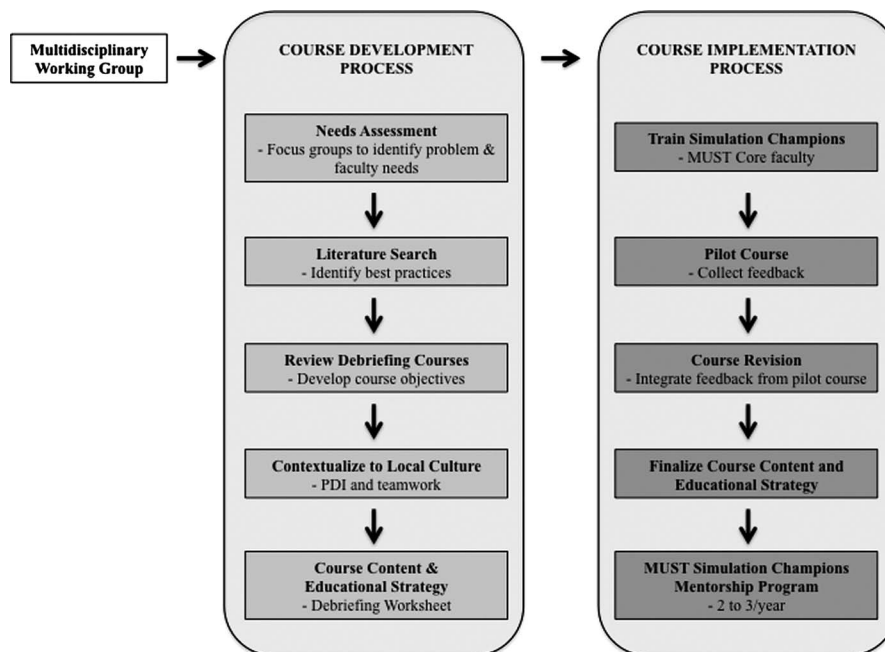
### Intervention

Participants were recruited to participate in a faculty development program consisting of foundational training in simulation-based education and debriefing for 2 days (ie, Sim for Life: Foundations Course). Participants were given opportunity to teach in the MUST simulation program while receiving mentorship by local simulation champions over the year. A 1-day refresher course in simulation-based education and debriefing (ie, Sim for Life: Refresher) was provided at 12 months.

#### Sim for Life: Foundations—Course Development Process

The Sim for Life: Foundations Course was developed collaboratively by faculty at MUST, the KidSIM Program at the University of Calgary, and the Stavanger Acute Medicine Foundation for Education and Research (SAFER). Course development involved a series of iterative steps based on Kern's Model for Curriculum Development,<sup>19</sup> which included the following: (1) problem identification and general needs assessment; (2) needs assessment of learners; (3) defining goals and objectives; (4) educational strategies; (5) implementation; and (6) evaluation and feedback. In the section hereinafter, we highlight how these steps were executed to develop a course geared toward the needs of facilitators in Uganda (Fig. 1).

Our research team took a deliberate, step-wise approach to the development of the Sim for Life: Foundations Course. A multidisciplinary working group of simulation experts from MUST, KidSIM, and SAFER were tasked with developing the course. A needs assessment was done to clarify the problem and to identify general and specific needs of faculty. The needs assessment consisted of 5 focus group discussions with key MUST leaders (ie, dean, vice chancellor) and 12 focus group discussions with clinical faculty (ie, leading clinician educators from 5 departments) and trainees (ie, select postgraduate and undergraduate trainees) to describe existing debriefing practices, use of simulation-based education, and experience of healthcare educators with simulation and debriefing. The results of the needs assessment highlighted the following issues related to debriefing: (1) although most faculty were familiar with the concepts of simulation-based education, few had opportunity to regularly teach using simulation; (2) few faculty had received formal training in debriefing, and most were unfamiliar with structured and learner-centered approaches to debriefing; and (3) discussing teamwork concepts during debriefing would be a relatively new topic for most faculty. To help define specific course goals and objectives and decide upon educational methodologies, members of the working group conducted a literature search to identify best practices in faculty development<sup>20</sup> and debriefing.<sup>1,21–30</sup> Existing simulation educator faculty development programs at KidSIM and SAFER were also reviewed, highlighting commonalities and variances and discussing opportunities for innovation with the new course. Best practices of medical simulation were



**FIGURE 1.** Sim for Life: Foundations - course development and implementation process.

presented to the working group, and suggestions were provided on how to best contextualize the course to local culture.<sup>7,31,32</sup> This discussion focused on teaching teamwork concepts in debriefing and how to promote discussion aligned with the low PDI of Ugandan culture.<sup>15,16</sup>

### Course Content

The following content (see Table, Supplemental Digital Content 1, which shows the full course agenda, <http://links.lww.com/SIH/A519>) was integrated into the Sim for Life: Foundations course: principles of adult learning,<sup>33</sup> role of simulation-based education,<sup>34–36</sup> teamwork concepts,<sup>37–40</sup> scenario design (including writing learning objectives),<sup>36,41</sup> prebriefing,<sup>42</sup> scenario execution (including enhancing realism and immersion<sup>43</sup>), and creating a debriefing plan and debriefing.<sup>1,21–26,44–46</sup> A specific emphasis was placed on identifying and describing teamwork concepts and highlighting strategies on how to improve teamwork during clinical care.

Debriefing content focused on debriefing structure, conversational strategies, and learner centeredness.<sup>47</sup> A modified PEARLS (Promoting Excellence and Reflective Learning in Simulation) framework for blended-method debriefing was taught in the course.<sup>45</sup> We outlined the 4-phase PEARLS framework for debriefing, including a reactions phase, description phase, analysis phase, and summary phase (ie, key messages). To simplify the debriefing process, the analysis phase focused on use of learner self-assessment (ie, plus-delta) and directive feedback. Simple phrases known to stimulate discussion (eg, “Tell me more”; “What are your thoughts on that issue?”) were taught to promote student reflection. We did not include content related to specific methods for focused facilitation (eg, advocacy inquiry,<sup>2,3</sup> circular questions<sup>48</sup>). Based on our prior experiences teaching novice facilitators, we have found that introducing these more advanced conversational strategies at an early stage often increases facilitator cognitive load, potentially resulting in suboptimal skill acquisition.<sup>49</sup>

We taught conversational strategies aligned with the low PDI of Ugandan culture, which promotes a limited dependence of subordinates on superiors.<sup>17</sup> Research by Ulmer et al<sup>15</sup> identified 6 characteristics of debriefing in high PDI cultures: debriefers talk more, are more involved in interactions, use leading questions, initiate most discussion, consume more time conveying medical knowledge as opposed to nontechnical skills, and find it difficult to discuss nontechnical skills. By contrast, we believe that debriefers in low PDI cultures would be most comfortable doing the opposite. We identified these as being tightly aligned with learner-centered strategies for debriefing<sup>47</sup> and therefore adapted a learner-centered approach to debriefing to support the implementation of debriefing consistent with cultural norms. To accomplish this, we cross-referenced Ulmer's PDI-relevant 6 characteristics of debriefing (see hereinabove) with specific learner-centered strategies taught during the course (Table 1).

We developed a new debriefing worksheet and structured debriefing tool, incorporating elements of the PEARLS framework to support debriefing practice during the course (Fig. 2). The worksheet had several key purposes: (1) highlight phases of debriefing; (2) provide suggested wording for each phase; (3) assist with the organization and flow from one topic to another; (4) provide a space for the facilitator to take notes of observed behaviors during the scenario, or learner comments made during the debriefing; and (5) provide a list of key teaching points. During the course, facilitators were oriented to the format of the worksheet and given opportunity to practice using the worksheet. Facilitators were encouraged to adapt debriefing method to learner needs and learning context by populating the worksheet while observing the scenario and during the debriefing.

### Educational Strategies

We used a blended approach (ie, incorporating various different educational strategies in course design) to learning, applying proven faculty development strategies used in

**TABLE 1.** Strategies for Teaching Learner-Centered Debriefing in a Low PDI Culture

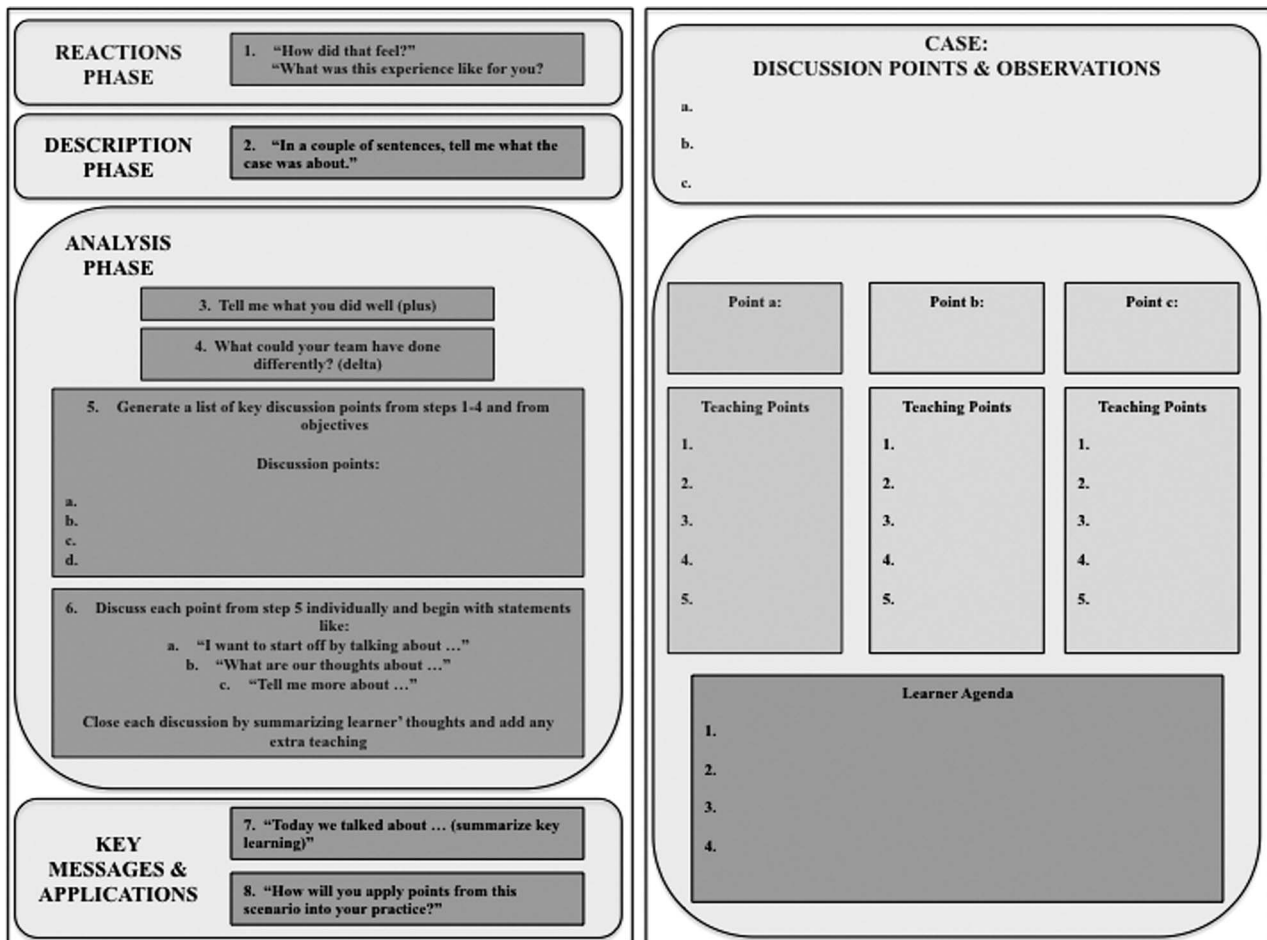
Debriefing Characteristic	Pattern Typically Observed in Low PDI Culture	Strategy to Promote Learner-Centered Debriefing
Debriefing/participant talking time	Debriefers talk less	- Debriefers encouraged to listen more - Debriefers encouraged to have learners self-assess performance - Debriefers encouraged to have learners close performance gaps
Debriefing/participant interaction pattern	Debriefers are involved in fewer interactions	- Debriefers encouraged to identify, prioritize and explore the learner agenda - Debriefers encouraged to have learners self-assess performance
Debriefing/participant interaction style	Debriefers ask less leading questions and more open-ended questions	- Debriefers taught to ask open-ended questions - Debriefers taught to reflect questions back to learners to generate more discussion
Debriefing/participant initiative for interactions	Debriefers are less likely to initiate interactions	- Debriefers encouraged to identify, prioritize and explore learner agenda - Debriefers taught to reflect questions back to the learner group to generate more discussion
Debriefing content	Appropriate balance of discussion (medical knowledge vs. nontechnical skills)	- Debriefers taught nontechnical skills content in course - Feedback provided to debriefers on balance of time spent discussing medical knowledge vs. nontechnical skills
Discussion of nontechnical skills	Nontechnical skills are prioritized in discussion	- Debriefers taught nontechnical skills content in course - Feedback provided to debriefers on balance of time spent discussing medical knowledge vs. nontechnical skills

medical education.<sup>20</sup> Short didactic lectures highlighted key knowledge components (eg, principles of adult learning, teamwork concepts, scenario design steps, key debriefing elements), which were supported by expert modeling (ie, scenario execution and debriefing) and small group discussion. Facilitators had opportunity for deliberate practice and feedback for debriefing skills, broken down by phase and/or specific conversational strategy. Video-based learning and small group

discussion was used to explore teamwork behaviors, scenario design, realism, and cultural considerations in simulation-based education.

**Local Champions and Course Implementation**

To ensure long-term sustainability of the course, 5 local simulation faculty at MUST were identified as simulation champions and mentored to become Sim for Life: Foundations course faculty. To become faculty, they participated in



**FIGURE 2.** A and B, PEARLS Debriefing Worksheet (neonatal sepsis).

the course development process, reviewed relevant literature, and were the learners in the first pilot testing of the course taught by international faculty. Feedback was collected after the pilot course and used to inform specific course revisions (eg, reconfiguring slides, shortening lectures, changing order of content, improving quality of videos), many aimed at making the content culturally appropriate. After revisions, the course was implemented and taught jointly by local and international faculty. Course evaluations were used to inform subsequent revisions to the course (Fig. 1).

### Teaching Opportunities

Simulation sessions with small teams of undergraduate medical and nursing students were setup to provide new facilitators the chance to debrief, with immediate feedback provided by MUST simulation champions and international faculty.

### Sim for Life: Refresher Course

A 1-day refresher course (see Table, Supplemental Digital Content 2, which shows full course agenda, <http://links.lww.com/SIH/A520>) was developed using the same approach as outlined previously, with a focus on refining skills taught in the foundations course. Participants were provided opportunity to self-identify individual learning needs to be addressed in the course. The course was taught by MUST faculty in collaboration with international faculty, who facilitated practice of debriefing skills with role-play exercises coupled with feedback. The MUST faculty received coaching 2 to 3 times during the year by international faculty to prepare them for the course. This approach helped ensure consistency in both course content and quality. The refresher course was delivered 12 months after the initial foundations course.

### Outcome Measures

The Objective Structured Assessment of Debriefing (OSAD) score was the primary outcome for the study.<sup>50</sup> The OSAD has 8 elements representing core components of effective debriefing that were identified from the literature and end-user opinion. Each category is rated on a scale of 1 to 5, with descriptive anchors provided for scores of 1, 3, and 5. In our study, we rated 7 elements, removing one element (“establishing learning environment”) as it related to the prebriefing phase of the simulation. The OSAD showed good interrater reliability and content validity when assessed in different contexts, in both 8 element and 7 element forms of the tool.<sup>50–52</sup>

Four different clinical videos of a team managing a patient with sepsis (2 adult cases: adult A and B, 2 neonatal cases: neonatal A and B) were developed to serve as trigger for debriefings. Scenarios A and B (for adult and neonatal cases) were of similar clinical complexity, focusing on the recognition and initial steps in management sepsis (ie, Airway, Breathing, Circulation, Intravenous fluids, antibiotics). Clinical performance was scripted across all videos to ensure consistency in the nature (ie, clinical, nontechnical) of performance gaps. Scenarios were designed to be common and relevant to the clinical practice of our participants. Scenarios A and B were designed to be nearly identical, apart from slightly different case histories. The MUST simulation champions were trained to portray the roles of healthcare providers in a standardized fashion during the debriefings. With this approach, we were able to ensure consistency in the number and type of key discussion points in the

debriefings, regardless of case type (ie, adult vs. neonatal sepsis). Study participants with a clinical background in adult medicine were assigned the adult sepsis cases, whereas those with pediatric training were assigned the neonatal case to debrief. After being given the scenario objectives and watching the video of the clinical scenario, each participant was asked to conduct a 20-minute debriefing. Use of the debriefing worksheet was encouraged.

Debriefings were conducted and videotaped at 4 time points: (1) pretraining (ie, immediately before the Sim for Life: Foundations course); (2) posttraining (ie, immediately after the Sim for Life: Foundations course); (3) at 12-month pre-refresher course; and (4) at 12-month post-refresher course. Study participants were randomly selected to watch either video A or B for the pretraining assessment and then watched the second video for the posttraining assessment. The same process was repeated for both 12-month assessments.

### Rater Training

The OSAD scores were measured at each time point via retrospective video review by trained, calibrated, and blinded raters. Two raters with no prior involvement in the study were selected to score all the debriefing videos. The raters both had clinical nursing background and for 15 years of simulation education and debriefing experience. Rater training and calibration included orientation to the OSAD and rating/discussion of 3 debriefing trigger videos (representing poor, good, excellent debriefing performance). Rater training and calibration ended when raters demonstrated an inter-rater reliability of greater than 0.8.

### Sample Size

Because of the small number of potential simulation faculty at MUST, we conducted this pilot study using a convenience sample of participants. A sample size of 14 participants allows detection of a medium to large effect size (Cohen  $d = 0.8$ ), with a power of 0.8 and significance level of 0.05.

### Statistical Analysis

We used descriptive statistics to summarize the demographic characteristics of participants. A mixed effect linear regression model was used to explore the effect of time on debriefing performance as measured by total OSAD scores. We also presented and compared the score of each element of the OSAD tool across 4 different time points using mixed effect linear models. Diagnostic plots (ie, residual plot, Q-Q plot) and the Shapiro-Wilk test were used to check the normality of model residuals. Goodness-of-fit of the model was presented as  $R^2$ . Effect sizes for mean score comparisons for each element of the OSAD tool were calculated using Cohen  $d$ .

## RESULTS

### Participant Demographics

A total of 14 participants were recruited to the study. One participant dropped out after completing the initial Sim for Life: Foundations course. In total, 13 participants (6 adult specialists and 7 pediatric specialists) from the Sim for Life: Foundations course had debriefing data analyzed for pre- and post-foundational training. Data were available for analysis from 9 of 13 participants for the 12-month (prerefresher) outcome, and 7 of 13 for the 12-month (postrefresher) outcome. Missing data from participants for 12-month (prerefresher and

**TABLE 2.** Demographic Characteristics

Characteristics	Summary
Sex, n (%)	
Male	9 (69.2)
Female	4 (30.8)
Profession, n (%)	
Attending MD (consultants)	8 (61.5)
MD trainee (residents or medical officer)	2 (15.4)
Nurse	1 (7.7)
Midwife	1 (7.7)
Public health lecturer	1 (7.7)
Postgraduate degree, n (%)	
Masters	12 (92.3)
PhD	1 (7.7)
Clinical practice experience, mean ± SD, yr	2.4 ± 0.9
Teaching experience, mean ± SD, yr	1.8 ± 1.0
No. clinical debriefings facilitated in the past 1 yr	
0	7 (53.8)
1–5	3 (23.1)
6–10	2 (15.4)
>10	1 (7.7)

postrefresher) outcomes were due to participant inability to return for follow-up assessments. Participants facilitated an average of 2 (range = 0–6) debriefings during the year. Participant demographic data is presented in Table 2.

### The OSAD Scores

The mean [95% confidence interval (CI)] OSAD scores pretraining, posttraining, 12-month prerefresher, and 12-month postrefresher were 18.2 (14.3 to 22.1), 26.7 (22.8 to 30.6), 25.5 (21.2 to 29.9), and 27.0 (22.4 to 31.6), respectively. There was a significant improvement from pretraining to posttraining [mean difference (MD) (95% CI) = 8.8 (4.8 to 12.8),  $P < 0.001$ , Cohen  $d = 1.67$ ], with no significant decay from posttraining to 12 months [MD (95% CI):  $-1.2$  ( $-4.8$  to  $2.5$ ),  $P = 0.54$ ]. There was no significant difference in OSAD scores pre- versus post-refresher training at 12 months [MD (95% CI) =  $1.5$  ( $-2.7$  to  $5.7$ ),

$P = 0.49$ ] ( $R^2 = 0.743$ ; Fig. 3). Reflecting on individual participant scores, 12 of 13 participants improved their OSAD scores after the initial training. Only 2 of 13 participants demonstrated decay in OSAD scores by 12 months.

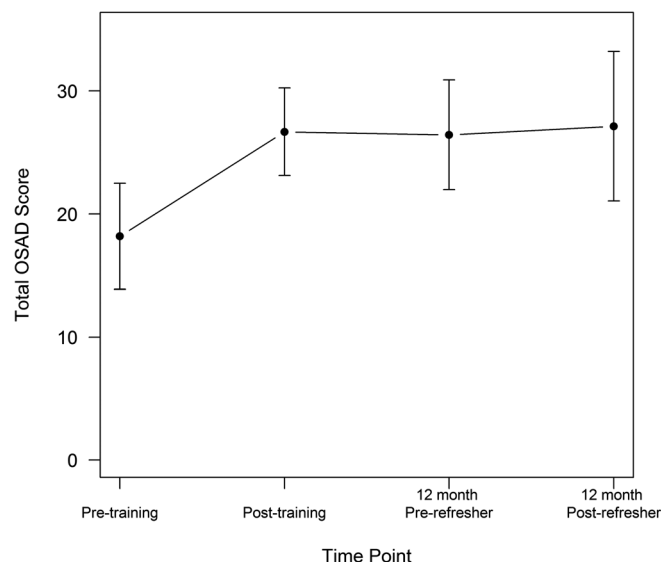
### The OSAD Element Scores

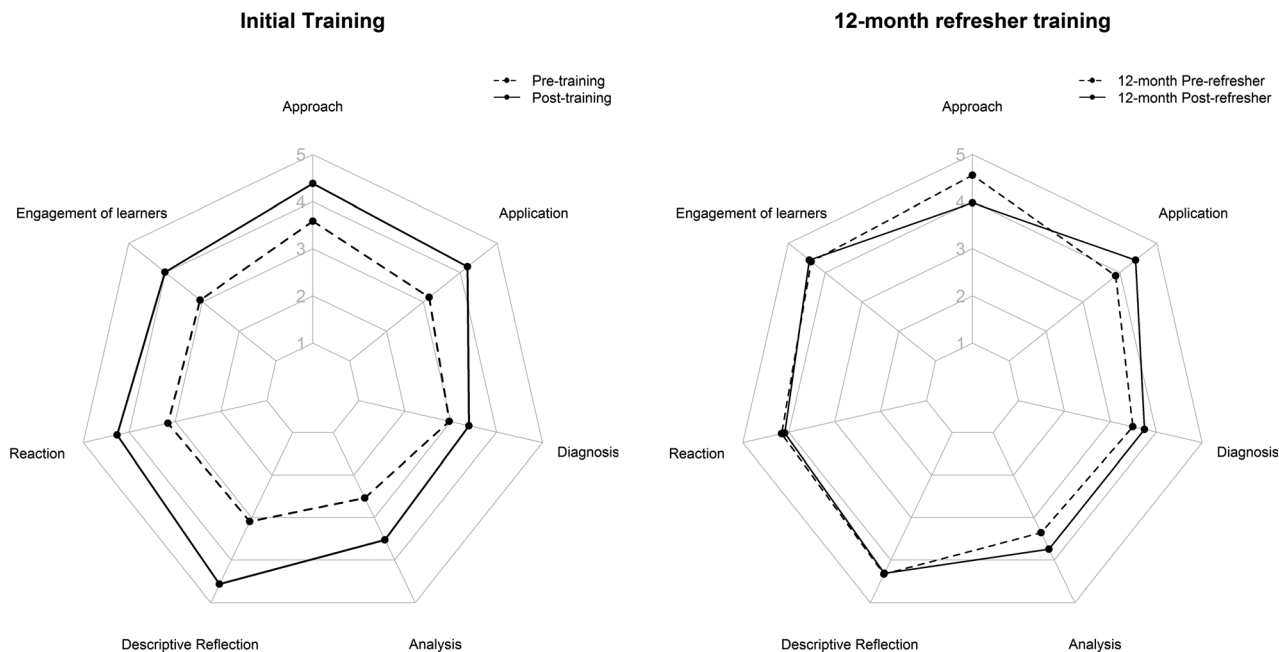
Participants improved significantly in each element of the OSAD tool after initial training (Cohen  $d$  for each element: approach 0.81,  $P = 0.01$ ; application 1.74,  $P < 0.001$ ; diagnosis 0.61,  $P = 0.047$ ; analysis 0.90,  $P = 0.007$ ; descriptive reflection 1.72,  $P < 0.001$ ; reaction 1.16,  $P = 0.001$ ; engagement of learners 1.48,  $P < 0.001$ ; Fig. 4). There was no significant difference between posttraining scores and 12-month (prerefresher) scores. Refresher training did not significantly improve most element scores at 12 months, with exception of the application score (3.6 vs. 4.3,  $P = 0.04$ , Cohen  $d = 1.22$ ; Fig. 4).

## DISCUSSION

Debriefing is a critical element of effective simulation-based education.<sup>1,21,29</sup> In our pilot study, we designed foundational training contextualized to local culture for simulation educators in Uganda. We were able to show that training resulted in improved short- and long-term retention of debriefing skills. In the small number of participants who completed an assessment after refresher training, we found that refresher training did not result in significant incremental improvement in debriefing skills at 12 months. This suggests that refresher training may not be necessary to ensure long-term retention of debriefing skills in this specific context and participant group. Future work with an adequately large sample size will be required to test this hypothesis. These findings offer insight into the importance and role of initial and refresher debriefing training for simulation educators.

Debriefing is defined as “a discussion between 2 or more individuals in which aspects of performance are explored and analyzed with the aim of gaining insights”<sup>21</sup> to improve performance. Effective application of debriefing during simulation-based education promotes the acquisition of knowledge, clinical skills, and nontechnical skills.<sup>21,23,29</sup> Unfortunately, there is little

**FIGURE 3.** Average debriefing performance over time.



**FIGURE 4.** The OSAD element scores pre-/post-initial and refresher training.

guidance in the literature on how simulation educators should be trained to promote the acquisition and retention of debriefing skills.<sup>5</sup> Debriefing assessment tools such as the OSAD<sup>50</sup> and Debriefing Assessment for Simulation in Healthcare<sup>4</sup> have shown promise in supporting feedback, whereas other programs describe benefits related to peer coaching and video review.<sup>53,54</sup> Given the lack of mentors and limited resources within the MUST simulation program, we did not feel that peer coaching was a viable option so early in the genesis of the program. For this reason, we focused on developing initial and refresher training for our group of educators, with the goal of rapidly building the team of competent debriefers.

We wanted to ensure that the process of learning during debriefing was consistent with local culture. We contextualized debriefing to the low PDI of Ugandan culture by teaching learner-centered approaches to debriefing. These included allowing learners to talk more, involving learners in more interactions, encouraging learners to initiate more interactions, and prioritizing the learner agenda. By aligning Ulmer's characteristics of debriefing<sup>15</sup> in low PDI cultures with strategies for learner-centered debriefing,<sup>47</sup> we were able to equip facilitators with strategies to promote discussion in a manner more consistent with local norms. Although we did not specifically collect outcomes related to this aspect of the course, we observed a high level of engagement among learners during simulation sessions throughout the year. With the ongoing dissemination of simulation-based education and debriefing to all areas of the world, our community would benefit from future work exploring the benefits of tailoring conversational strategies during debriefing to local PDI and identifying if potential benefits hold true in low versus high PDI countries.

The profile of educators within the MUST program influenced the instructional design of the Sim for Life: Foundations Course. Our participants were busy clinicians who concurrently managed a heavy teaching load. For this reason, most were expected to teach simulation on a relatively infrequent basis. We

wanted to ensure that skills were easy to acquire and support the application of these skills with a worksheet to promote skill retention, even in those educators who debriefed infrequently. We tried to simplify the debriefing process to reduce cognitive load—this was achieved by teaching learner self-assessment (ie, plus-delta), directive feedback, and open-ended questions during the analysis phase. Prior studies have demonstrated value in the use of debriefing scripts for novice facilitators,<sup>55</sup> so we designed a debriefing worksheet that included both process and content elements—with the aim of improving debriefing performance by reducing cognitive load.<sup>41,49</sup>

The success of our program has several implications for debriefing training around the world. We have successfully pilot tested a simulation educator course at MUST, where simulation-based education, debriefing, and teamwork were relatively new concepts to most of our faculty. Our results suggest that investment in initial debriefing training supported by a debriefing worksheet is sufficient for acquisition of core debriefing skills. This work sets the stage for phase 2 of the Sim for Life program, where we will aim to support the implementation of simulation-based education across East Africa. Our train the trainer model will become a core piece of this new initiative, with continued efforts to contextualize to local culture that can vary between countries. In the future, we hope to explore the relative contribution of peer coaching, mentorship, and other initiatives designed to enhance debriefing skills.

### Limitations

Our study has several limitations. Our sample size was limited by the number of faculty at MUST. As a result, we had a relatively small sample size and an even smaller sample at our 12-month assessment. This limits our ability to provide a strong conclusion regarding retention of debriefing skills at 12 months. However, the mixed linear model we used allows us to partially account for missing data, and despite such a

small sample, we were still able to demonstrate long-term retention of debriefing skills. Our study was observational in nature and lacked a comparison group to serve as a control. We believe that improvements in debriefing performance are directly related to the intervention as our participants were not exposed to any other faculty development opportunities during the course of the study. Although all of our participants had opportunity to facilitate simulation sessions and debriefings during the year, the degree of participation was variable. Although we acknowledge these limitations, our pilot study contributes by describing the process of contextualizing debriefing training to local culture (with low PDI) and also quantifying the impact of a faculty development course on debriefing skill acquisition and retention.

## CONCLUSIONS

The Sim for Life Foundations program, involving the teaching of debriefing skills contextualized to local Ugandan culture, significantly improves debriefing skills, with data suggesting that these skills are likely retained at 12 months after initial training in the majority of simulation educators.

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