Engagement Across Professions

A Mixed Methods Study of Debriefing After Interprofessional Team Training

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Introduction: Simulation is an ideal tool for interprofessional (IP) team training. Debriefing after simulation is key to IP learning, although engagement and participation may be adversely influenced by cultural and hierarchical barriers. This mixed-methods study explored factors influencing learner engagement and participation in IP debriefing and the experience of "silent but apparently engaged" participants.

Methods: Semistructured profession-specific focus groups were conducted with participants from a weekly IP pediatric simulation program. Focus groups were recorded, transcribed, and thematically analyzed. Eligible participants were assigned to "silent" or "verbal" groups according to observed behavior and received a questionnaire. Participants' self-rated engagement scores were compared using a *t* test.

Results: Thirty-six of 81 eligible participants were included, 13 completed a questionnaire, and 23 (8 physicians, 10 nursing staff, 4 pharmacists, 1 respiratory therapist) participated in 13 focus groups. Twenty-two subthemes were grouped into 6 themes: psychological safety, realism, distractors, stress, group characteristics, and facilitator behavior, with differences in perspective according to profession. Of the 36 respondents, 18 were "silent" and 18 "verbal." Self-rated engagement scores differed between groups (3.65 vs. 4.17, $P = 0.06$); however, "silent" participants described themselves as engaged.

Conclusions: Themes identified that influenced learner engagement in debriefing included aspects of prebriefing and the simulation. Some aligned with general simulation best practices, such as psychological safety, prebriefing, and facilitator behavior. Findings unique to IP simulation included importance of realism to nonphysician professions, protecting time for training, group composition, and direct probing by cofacilitators to decrease physician bias and emphasize IP contributions. Silent participants reported engagement.
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The Institute of Medicine identified poor teamwork and communication as key contributors to patient harm and called for increased interprofessional (IP) training to address the problems.[1,2] Interprofessional training emphasizes collaboration by learning from, with, and about one another, with the goal of improving patient care. Health care simulation is an ideal educational approach for improving IP teamwork, enabling realistic, experiential opportunities for deliberate practice.[3]

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The facilitated, reflective debrief, which typically follows a simulated scenario is critical to deeper IP learning.[4] Debriefing can synthesize, strengthen, and transfer learning, but requires learner participation to be successful.[5] Debriefing IP groups is challenging, requiring navigation of complex health care hierarchies, social identities, unique roles and responsibilities, and individual learning styles.[6,7] These factors may influence participation and engagement in IP simulation debriefs. Participation refers to an action or act of doing something, such as a verbal contribution in a simulation debrief, whereas engagement is the cognitive, behavioral, and emotional focus of a learner during an educational experience.[8] Higher levels of engagement are associated with increased learning.[9] Although multiple studies suggest that facilitator behavior and other factors impact learner engagement in debriefs,[8,10] little data exist regarding best practices to optimize engagement for IP groups.

In 2019, we analyzed a weekly IP simulation training program to identify modifiable factors associated with learner engagement during debriefing. We found that group size, level of training, and facilitator behavior were associated with learner engagement.[10] This pilot study was limited by measurement of engagement relying on observable behavior only.[11] We wondered about the more nuanced internal experience of individuals, in particular those who seemed to be engaged but did not verbally contribute during debriefing. This follow-up mixed-methods study sought to further explore IP learner

engagement and participation in debriefing. Our specific aim was to identify factors that enhance or impede individual participation and engagement during IP debriefing. A secondary aim was to determine whether participants who are apparently "silent but engaged" during an IP debrief endorse engagement.

METHODS

Qualitative Approach

We used thematic analysis to explore the experience of engagement for individual participants during debriefing in our IP simulation-based team training program.

Researcher Characteristics and Reflexivity

Our research team is deeply vested in the IP simulation-based training program and optimizing IP educational experience in this context. M.C., S.L., and L.M. helped to develop the program. L.M. and J.F. are attending pediatric hospital medicine providers and physician debrief cofacilitators. C.S. is a former nurse educator from the pediatric inpatient unit and has been a program participant and steering committee member. L.M., J.F., C.S., and M.C. are experienced simulation educators with formal debriefing training. S.L. and C.D. are simulation specialists who have produced hundreds of simulation-based IP trainings across disciplines. All team members were involved in a pilot project exploring participant engagement involving video review and analysis. Our team conducted regular peer debriefing through the course of the project to reflexively process our perspectives as themes emerged from the data.[10]

Context

Our IP team training occurs at the Barbara Bush Children's Hospital, an urban, academic children's hospital within Maine Medical Center, a 600-bed hospital located in Portland, ME. The Pediatric Inpatient Unit (IPU) at Barbara Bush Children's Hospital has 30 beds and the Pediatric Intensive Care Unit (PICU) has 8 beds. Thirteen profession-specific focus groups were held between March and November 2021. Because we hoped to explore the perspectives of "silent but apparently engaged" participants (who may also be less likely to participate in voluntary focus groups) we also sent an anonymous questionnaire to all eligible subjects. Medical, nursing, and pharmacy students were not eligible for inclusion in the study because the curriculum targets practicing clinicians. All other participants who had attended a team training event from March to October 2021 were eligible. Subjects who participated received a gift card. Our study was reviewed by the Maine Medical Center Institutional Review Board and deemed exempt from full review.

Simulation Trainings

Our simulation program includes IP pediatric care team members from our pediatric IPU and PICU including trainees and experienced interdisciplinary providers. Interprofessional students rotating in these units are welcome to attend, but learning objectives target practicing care teams. Ad hoc teams of participants attend weekly 1-hour sessions in our on-site simulation suite. Group size varies with a range of 8 to 16 members, representing 2 to 4 professions (nurses, physicians, respiratory therapists, and pharmacists). The program started in 2016 and is overseen by an IP steering committee comprised of IPU and PICU nurses, pediatric hospitalists and intensivists, respiratory therapists, and inpatient pharmacists.

Case content varies but educational format is consistent. Each session starts with a prebrief to introduce and orient participants to equipment, establish psychological safety, and introduce learning objectives. Learning objectives include: 1) Practice and improve IP teamwork and communication; 2) Explore systems of care relevant to crisis resource management of a pediatric patient; and 3) Management of the clinical scenario for the session (eg, recognition and treatment of supraventricular tachycardia). The prebrief and introduction last 10 minutes, with the remainder of the hour divided between a single simulated scenario and facilitated debrief. Debriefs are cofacilitated by a nurse and a physician. Structure varies, but typically includes Reaction, Description, Analysis, and Summary phases,[12] emphasizing IP communication and education.

Data Collection

Participants were invited, via e-mail, to attend a focus group within 30 days after their IP simulation and debrief. Thirty days was chosen to minimize participant loss of recall over time.[13] All eligible participants were assigned to a "silent" (<5 verbal utterances) or "verbal contributor" (>5 verbal utterances) group by a research team member who reviewed video recordings of the debriefing at the completion of the training.

Multiple 90-minute focus group sessions were offered by profession: 1) physicians (attending and resident), 2) nurses and certified nurse assistants (IPU and PICU), and 3) respiratory therapists and pharmacists (staff and residents), who were grouped together due to smaller participant numbers in our weekly IP simulation program. We opted to group by profession based on data that homogenous groups may be more likely to participate in discussion and can relate to each other's comments leading to a more candid discussion.[13,14] Participants were provided an information sheet describing the study. Demographic information was collected at the start of each focus group, and each participant was assigned a study number to allow for deidentification.

Focus groups were facilitated by 1 of 2 nursing researchers (M.C., C.S.) who do not serve as debrief facilitators, using an interview guide (Fig. 1). The interview guide and questionnaire (see Supplemental Digital Content 1, participant questionnaire, http://links.lww.com/SIH/A952) were developed via consensus among the researcher team based on experience in developing and implementing the program and analyzing engagement in the pilot study.[10] Both were tested on volunteer subjects (who were excluded from subsequent analysis) and revised based on feedback. The interview guide was refined during the study to specifically probe individual definitions of "engagement" and identify specific barriers or promoters of verbal contribution. Scheduling issues sometimes led to a single participant, in which case the focus group was transitioned to a semistructured interview using the same script. All learners (whether they attended a focus group or not) were offered the opportunity to complete an anonymous questionnaire in an attempt to capture the insights of individuals who were not comfortable sharing in person. The questionnaire, containing the same demographic information and structured questions as the focus group, was distributed via an honest broker

Interview Guide
Can you recall how you felt during the debrief session?
What challenges or discomforts, if any, did you encounter during the debrief session? Did that impact your participation?
What parts of the debrief did you find engaging?
How did you feel about the comments being made?
Do you recall how many facilitators there were in the debrief session? Do you feel it was a successful way to debrief? Why or why not?
If there was more than one facilitator, did they work well as a team?
Were you generally able to follow the conversation?
Was there a time during the debrief session that you wanted to speak, but did not do so? If so, why did you not speak?
How large was the group in your debrief session? Did that affect your participation?
How well did you know the team that was in the debrief session with you? Did that affect your participation?
How do you learn best? What is your learning style?
How would you describe engagement?
Is there anything else that you would like us to know?

FIGURE 1. Semistructured interview guide for focus groups.

(a neutral third party who deidentified and exported data to the study team). (see Supplemental Digital Content 1, participant questionnaire, http://links.lww.com/SIH/A952).

Data Analysis

We used reflexive thematic analysis to interpret our data according to 6 phases described by Braun and Clarke.[15] In addition, we included constant comparison, iterative revision of focus group guide, and proceeding to saturation—features found in grounded theory studies.[16] Two researchers (M.C. and L.M.) read the first 2 focus group transcripts to familiarize themselves with the data (phase 1). Next, all members of the author team reviewed the first 2 focus group transcripts to identify emergent concepts related to participant engagement, applying an open-coding approach.[16] These concepts and associated definitions were summarized in a jointly developed codebook to facilitate application of codes to subsequent transcripts. Transcripts were uploaded to Dedoose version 9.0.18 (SocioCultural Research Consultants, Los Angeles, CA). Two researchers (M.C. and L.M.) then independently applied codes to 5 transcripts (phase 2). Areas of coding disagreement were identified and discussed. As new concepts emerged, the codebook was expanded to include new codes and definitions, and codes were associated to identify early themes (phase 3). Thematic saturation was reached when no new concepts or categories were identified from the transcripts. The research team then assembled to review the coded excerpts and group similar concepts into subthemes and themes (phases 4 and 5).

Focus group participants and questionnaire respondents were asked to score their self-assessment of engagement during the IP debrief on a 1 to 5 scale. Mean engagement scores of "silent" (<5 verbal utterances) and "verbal contributor" (>5 verbal utterances) groups were compared using an independent 2-sample, *t* test using SPSS version 28 (SPSS Inc, Chicago, IL). Qualitative responses from the questionnaires were reviewed and coded at the end of the study period (after focus group transcript coding was complete) using the same process, and results were compared with the focus groups. No new codes were added based on questionnaire analysis.

Techniques to Enhance Trustworthiness

In addition to Braun and Clarke Thematic Analysis,[15] we used triangulation and member checking[17] to ensure trustworthiness. The use of both focus group and questionnaire tools to collect information, as well as comparison of findings between focus groups of different professions, provided data triangulation. Investigator triangulation was also used; transcripts were coded separately by 2 different researchers and then reviewed independently by the entire research team to ensure accurate representation of ideas. Member checking was also used because themes and quotes were shared with the IP simulation-based steering committee to ensure findings resonated with their experience.

RESULTS

Eighty-one eligible participants were identified during the study period, and 23 (28.4%) participated in a focus group. There were 33 anonymous questionnaires completed, 20 by focus group participants and 13 by non-focus group participants. Three participants attended a focus group and did not complete a questionnaire. Including focus group participants and questionnaire respondents, our results reflect the input of 36 of 81 (44.4%) eligible participants. Demographic characteristics of these participants are described in Table 1.

Of the 36 participants, 18 were in the "silent" (<5 verbal utterances) group and 18 in the "verbal contributor" (>5 verbal utterances) group. Self-reported engagement scores did not significantly differ between the "silent" group (M = 3.65, SD = 1.10) and the "verbal contributor" group (M = 4.17, SD = 0.79), $P = 0.06$.

Thirteen focus groups lasted from 20 to 75 minutes. Four focus groups were converted to semistructured interviews due to scheduling challenges. Six major themes were identified: Psychological Safety, Realism, Group Characteristics, Distractions, Stress, and Facilitator Behavior. Several themes that

TABLE 1. Description of Participants

	Participants Identified (N = 36)
Profession	
Physician	13 (36%)
Nursing	16 (44%)
Respiratory therapy	1 (3%)
Pharmacy	5 (14%)
Certified nursing assistant	1 (3%)
Years of experience	
<1	12 (33%)
1–5	15 (42%)
5–10	2 (6%)
>10	7 (19%)
Simulation debrief session	
<1	9 (25%)
2–5	10 (28%)
5–10	3 (8%)
10–20	11 (31%)
>20	3 (8%)
Utterance group	
<5	18 (50%)
>5	18 (50%)

emerged pertained to prebriefing or the simulation scenario phases of training, but were directly related to participant engagement in debriefing.

The selected quotes that support the themes and subthemes identified are illustrated in Supplemental Digital Content 2 (see table, themes, subthemes, and selected quotes, http://links.lww.com/SIH/A953).

Psychological Safety

Participants discussed the importance of psychological safety in IP debriefing. Body language of other participants was an important factor cited in feeling psychologically unsafe and could significantly impede participation and engagement ("I think body language says a lot, if people are looking disinterested, that can have an impact on everyone in the room." MD 3). Prebriefing was identified as an opportunity to promote psychological safety. Novice learners in particular felt wary of participating, often preferring a more observational role, particularly in simulations including experienced IP clinicians from the same or other professions.

Realism

Participants reported that having true clinicians partake in their native role, rather than having someone "play" the role, enhanced realism, buy-in, and consequent engagement ("The more realistic you can make it, the more value people will put on it." RN 2). Perceived value of the educational session diminishes with resultant disengagement when novice learners participate in roles that are not realistic (eg, a medical student or new intern leads a code "for practice"), especially for seasoned clinicians. In situ simulation sessions were preferred by many participants; they stated that it adds more value when their equipment, supplies, and workflows are in their native environments. Task fidelity, such as the ability to adjust intravenous pumps using a drug library or draw up medications, was important to participants, particularly for those in nonphysician roles with unique skills-based competencies.

Group Characteristics

Participants generally reported that smaller numbers encouraged participation and engagement. A smaller group with multiple professions represented was described as optimal for maximizing engagement, and larger or unbalanced groups were less ideal. The IP nature of the group was perceived to add learning value for all professions and enhance realism, as long as there was an absence of apparent hierarchy. If IP hierarchy was perceived, it was felt to impede engagement especially for nonphysician participants ("The environment for me was a little bit of that hierarchy. Being a new [pharmacy] resident…I don't want to say something wrong, presuming the [medical] residents are more experienced than I am, especially if they are specific to pediatrics and we were not." Pharm 4).

Distractions

Clinical distractions were the most commonly cited barrier to engagement and were mentioned by all professions. The looming clinical workload and perceived stress on peers who remained on the unit to cover adversely affected simulation experience and overall engagement. ("It was a super busy month…so I feel like [simulation] has been less engaging as far as everyone's participation." MD 4). Participants reflected that they would resist initiating or participating in a richer discussion as the hour drew to a close. Some participants remain clinically responsible for patients and pages interrupted their participation and learning. Some participants felt that having set start and end times facilitated engagement because they were able to commit to being present knowing that they were only spending an hour off the unit.

Stress

Participants shared that individual personalities and stress responses influence engagement and ability to participate in simulation training. They reflected how a "quiet personality" or anxiety could be interpreted as disengaged or nonparticipatory, but was actually something very different. Time to decompress from the scenario before initiation of the debrief was noted to be important, and participation and engagement were inhibited if this was not permitted. Participants described that simulation is stressful ("I definitely have more anxiety in sim than I do when these things come up in real life, isn't that silly?" MD 2), but "worth it", and overt acknowledgement of stress by facilitators or other participants helped to minimize anxiety and promote participation and engagement.

Facilitator Behavior

Facilitator behavior was a key influencer of participant engagement. Participants reported facilitator style and demeanor could offset simulation-related anxiety, permit a more comfortable experience, and promote engagement. Use of humor, personal experience, and reassurance all alleviated anxiety and promoted psychological safety and engagement. Participants reflected that direct probing by facilitators optimizes IP learning ("Having pointed questions to bring up teaching points that were expected or were the point of the experience to begin with is important." MD 2). They discussed how direct probing could elicit verbal participation and promote input from all professions. Although sometimes stress-provoking, "being called

on" could also alleviate anxiety related to wondering if and when to participate.

DISCUSSION

We sought to explore IP leaner engagement and participation in debriefing. Our participants identified key themes influencing debriefing engagement after IP simulation. Some were consistent with well-described simulation best practices for all learner groups (the importance of psychological safety, prebriefing, and stress). Others were unique to IP simulation including the importance of realism to nonphysician professionals, group composition, and direct probing by cofacilitators to decrease physician bias and emphasize IP contributions. Our study is unique in that it focuses on debriefing and involves practicing care teams rather than students. In spite of our attempt to focus on debriefing in isolation, it became clear that factors related to the simulation itself (as well as prebriefing) were inextricably linked by our participants to their level of engagement in debriefing. This suggests that efforts to optimize IP debriefing must consider the entire simulation event. A secondary aim was to understand the internal experience of engagement for silent participants. On direct questioning regarding their level of engagement, that "silent but apparently engaged" group reported almost uniformly that they were engaged. None of our results were unique to pediatrics, and many are easily translatable to modifiable aspects of program development and delivery.

Dunnack's[2] 2020 metaethnography of participant perceptions in IP simulation identified and mapped 6 themes into a "Successful Simulation Staircase." The first theme, "overcoming discomfort", and the second, "appreciating a safe zone for learning", support our findings that consideration of "stress" and "psychological safety" are foundational to optimizing engagement in debriefing. Although these concepts are well-described tenets of simulation "best practices", it is perhaps even more essential in IP training, which has additional layers of hierarchy and social identities.[7]

Psychological safety can be protected in several ways, perhaps most significantly by the behavior of the debrief facilitator. Multiple participants suggested that reinforcement of the principles of the Rudolph's[18,19] "Basic Assumption" (that all participants are intelligent, capable, and care about doing their best and want to improve) both alleviated simulation-related stress and promoted psychological safety to optimize participation and engagement. This a priori acknowledgement of competence and best intention may be especially important to practicing health care practitioners entering a scrutinized setting like simulation (as opposed to learners who are expected to have performance or knowledge gaps).[2] Prebriefing offers an opportunity to set this stage.[20] Our study confirms that prebriefing is even more crucial in an IP setting given the hierarchical dynamics introduced by including several different professions in the learning environment. This reinforces Boet's[7] tips 7 and 8 of "*Twelve Tips for Interprofessional Simulation*", which emphasize the importance of the prebrief and the additional psychological hazard that an IP setting introduces to simulation debriefing. Holmes and Mellanby[21] interviewed 16 experienced IP debriefers and also found that psychological safety was also deemed critical from their perspective. Our study reinforces the need for careful consideration of psychological safety of participants and adds that this is a recognized priority of the participants themselves.

Other facilitator behaviors directly influence participant engagement in a positive or negative way in an IP setting. Most of our participants, across professions, cited direct probing by facilitators as something that enhanced their engagement. Conventional wisdom suggests that this technique, if not carefully used, can have a detrimental effect on psychological safety and increase simulation-related stress by making participants feel put on the spot, particularly when they are not prepared to contribute. Our study participants stated that when deployed carefully, direct probing might actually *promote* psychological safety, by maintaining an IP balance and inviting verbal contribution from those who were unsure about the best time to speak up. Examples of "careful" probing include asking a participant to comment on something that the facilitator estimates to be well within their professional expertise or directing a follow-up question to obtain a different professional perspective. Direct probing of nonphysician participants may help to dismantle perceived or actual traditional medical hierarchy that places physicians at the top, by inviting and emphasizing meaningful contribution of nonphysician professionals.

In spite of the fact that study participants identified that facilitator behavior can deconstruct the professional hierarchy, and concerted effort in our program to decrease physician bias since the inception of our program, there was simultaneous identification that we have room for improvement in this area. In their study of debriefer perspectives, Holmes and Mellanby cited the potential for hierarchy as a key distinction of debriefing IP groups when compared with single-profession learner groups. They also noted that few of their participants had experienced direct problems with hierarchy, but noted that most of their debriefers were physicians and that their perceptions of hierarchy may not align with those of simulation participants. Our study suggests that the perception of hierarchy by scenario participants exists and may be a challenging problem to overcome.

The nonphysician professionals in our study indicated that scenario "realism" was critical to their engagement in debriefing. They suggested that when the simulation was not constructed to include consideration of task or equipment-based key competencies (such as administering medications) it devalued their IP role. This finding is supported by the work of Naismith et al, investigating IP perspectives of the contribution of "fidelity" in a simulation-based training. This analysis probed deeply into 3 aspects of fidelity and found that although physical fidelity (the look and feel of simulation equipment) was not critical, psychological fidelity (sufficient representation of tasks to enable participants to engage authentically) and sociological fidelity (reality of the IP context) were.[22] Our collective findings suggest that consideration of fidelity in scenario design (realistic simulation of IP-specific tasks or procedures, in situ setting whenever possible, and authentic IP balance of participants) can optimize IP engagement in debriefing.

Another well-recognized barrier to IP simulation is scheduling protected time for care team members from different professions to assemble away from clinical duties.[7] We found that clinical distractions were easily the biggest barrier to

engagement. This speaks to the universal challenge of scheduling IP learning events.[23] In spite of efforts to limit our weekly trainings to 1 hour and ensure coverage for some participants, many did not perceive complete "protection" of that time for learning. Participants continue to think about their clinical responsibilities as well as the burdening of colleagues who covered while they participated in education. For optimal IP learning to occur, separation of clinical duties from training time is ideal. The balance between feasibility of training and eliminating this key distraction remains a challenge.

Engagement is described in the literature as including both observable behaviors (verbal contribution, body language, and eye contact) and as an internal state of processing and synthesizing information.[24] Our participants clarified that it is quite possible to be silent and also engaged. Shi and Tan[25] divide engagement into 6 categories encompassing both vocal and silent. Our participants identified that a more novice experience level and a more initially "watchful" personal style were reasons to not verbally contribute in spite of interest. This supports that there is a place for quiet but engaged participants in the debrief. That said, self-assigned engagement ratings were lower in the less verbal group, suggesting that facilitator behavior that increases comfort and lowers barriers to verbal participation of as many team members as possible is still the ideal. Creating a learning environment that meets the needs of both the silently engaged participant as well as the verbal participant can be a challenge in IP simulation-based education and requires a skilled facilitator to maximize learning.

Limitations

A limitation of our study is that it reflects the experience of participants in a regularly occurring, mature training program at a single center. The culture of IP collaboration may vary considerably between settings. As such, findings may not be generalizable to other settings; however, most studies describing the experience of IP simulation-based team training participants are single-center. The extent to which our findings support or oppose those of other studies may contribute to generalizable best practices for IP simulation. Another limitation includes the possibility of participation bias. In our voluntary study, participants who attended focus groups may be more engaged than those who opted not to participate. They may also have different perceptions of facilitator behavior (eg, comfort with direct probing) than those who did not participate. Including an anonymous questionnaire was an attempt to address this participation bias, but cannot eliminate it entirely. Our participants were largely physicians and nurses with fewer pharmacists and just 1 respiratory therapist, an imbalance also reflected in our overall training program. This may limit the generalizability of the experience of those professional groups.

Future Studies

Future studies can compare perceptions of individuals identifying as engaged with those who are less engaged or further explore group characteristics (total group size, learning level, IP balance), cofacilitator behavior, and use of structured debriefing frameworks to assess the impact on engagement and participant experience in IP simulation training.

CONCLUSIONS

Our single-center mixed-methods approach exploring engagement in IP simulation debriefing found that providing a prebrief, establishing psychological safety, increasing realism, and facilitator behavior to elicit IP participation (including careful direct probing of participants), promote engagement. Simulation-related stress, clinical distraction, and perceived physician bias were identified as detractors. Our qualitative data suggest that optimizing opportunities for participation and engagement might still produce the "silent" learner; however, they describe themselves as engaged.

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