Impact of simulated-based training on the skills of the debriefer in healthcare simulation: A preliminary study

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INTRODUCTION

According to the "Guidelines for good practice in healthcare simulation" of the french High Authority for Health (HAS) [1,2], instructors must have simulation-specific training and skills that need to be regularly assessed. Recently, the French Society for Healthcare Simulation (SoFrasims) published the guideline "competences transmitted during the short training of trainers in health simulation"[3]. This describes the key skills to be acquired for the instructor during the so-called "short" initial training courses.

Debriefing is recognized as the key element of the healthcare simulation [4-5]. But, continuous education of simulation instructors is uncommon [6], and there is no guideline for this subject.

Recognizing the need for developing the skills of instructors in healthcare simulation, we have designed a continuous training program focused in particular on the development of debriefing skills.

The objective of our study is to identify the impact of this program on the skills of the debriefer.

MATERIALS AND METHODS

Study design

We conducted a prospective, non-randomized, interventional study to assess the skills of the instructors, b efore and after a simulation-based course aiming to improve their debriefing skills. Each participant completed a self-assess-

ment questionnaire before the start of the training and then at the end of the day, corresponding to a level 2 evaluation on the Kirkpatrick model [7]. All participants took part on a voluntary basis. The study started in March 2019 for 1 year.

Population

All instructors who participated in the course "perfecting the debriefing skills of trainers in healthcare simulation" were included. The exclusion criteria are the absence of initial training.

Data collection tool

Unlike debriefing assessment scales, there is no validated tool to assess the skills of debriefers. We have constructed a questionnaire listing the main skills of the debriefer identified in the literature such as: skills to co-debrief, debriefing technical or non-technical skills, managing difficult debriefings. Using a 10-point numerical rating scale, participants self-evaluated each of these specific skills and their overall debriefing skills.

Intervention

Simulation training "perfecting the debriefing skills of trainers in healthcare simulation". It includes four main objectives:

1. Professionalize the trainer in order to gain autonomy

2. Perfecting techniques for difficult debriefings

3. Improving co-debriefing techniques

4. Developing reflective thinking as a pedagogical tool

Each session lasted one day. They included a briefing, four to six debriefing simulations with simulated learners and a "debriefing of the debriefing" after each scenario. It was designed according to the recommendations of good practices for simulation established by HAS. The session is led by an instructor with more than 7 years of experience as a simulation instructor and more than 3 years as an instructor for simulation trainers.

Evaluation

The primary outcome measure was the self-assessment score of the overall debriefing skills (scale of 10), compared between pre-and post-training. Secondary outcomes were a self-assessment of each specific skill (scale of 10), satisfaction rate, and a hetero-assessment of knowledge.

Statistical Analysis (BiostaTGV® - Excel®)

Quantitative variables were expressed as means and standard deviations, and qualitative variables as percentages. Comparisons between pre and post self-assessment by numerical scale were performed with a signed Wilcoxon rank test. All tests were two-tailed, and a p-value < 0.05 was required for statistical significance.

For each skill score assessed:

- we described the average score with delta calculation before and after intervention

- we compared pre and post scores for all participants using the Wilcoxon test for paired samples.

RESULTS

Study population

These results are those of a preliminary investigation, since the study is underway. 5 participants were included in the first training day (100% participation rate). All were trained in healthcare simulation teaching. Among the professions represented were 2 doctors, 2 paramedical supervisors and 1 nurse.

Principal outcome measure

The average global skills score increased by 1 point with an average score of 4.8 ($\pm$1.9) before versus 5.8 ($\pm$1.6) after training without a significant difference (p = 0.17).

Secondary outcomes

The average satisfaction rate was 9.6/10.

Concerning difficult debriefing skills

- the average scores for conflict management were 4.25 ($\pm$0.5) before versus 6.6 ($\pm$0.9) after, an increase of +2.35 (p = 0.09)

- the average scores for the management of an emotionally troubled learner were 5.25 ($\pm$1.2) before versus 6.4 ($\pm$0.9) after, an increase of +1.15 without a significant difference (p = 0.09)

There was also an increase of +1.2 point in the average scores for the skill of debriefing non-technical skills (average score of 5.6 ($\pm$1.7) before versus 6.8 ($\pm$1.5) after).

The different results are presented in Figure 1. The calculated total score (sum of all score for each skill, 60 points total score) increased by 7.8 points with a total score of 28.6 ($\pm$8.7) before versus 36.4 ($\pm$9.7) after training (p= 0,058) Figure 2.

FIGURE 1: Evolution of self-assessment scores of debriefer.

FIGURE 2: Calculated total score
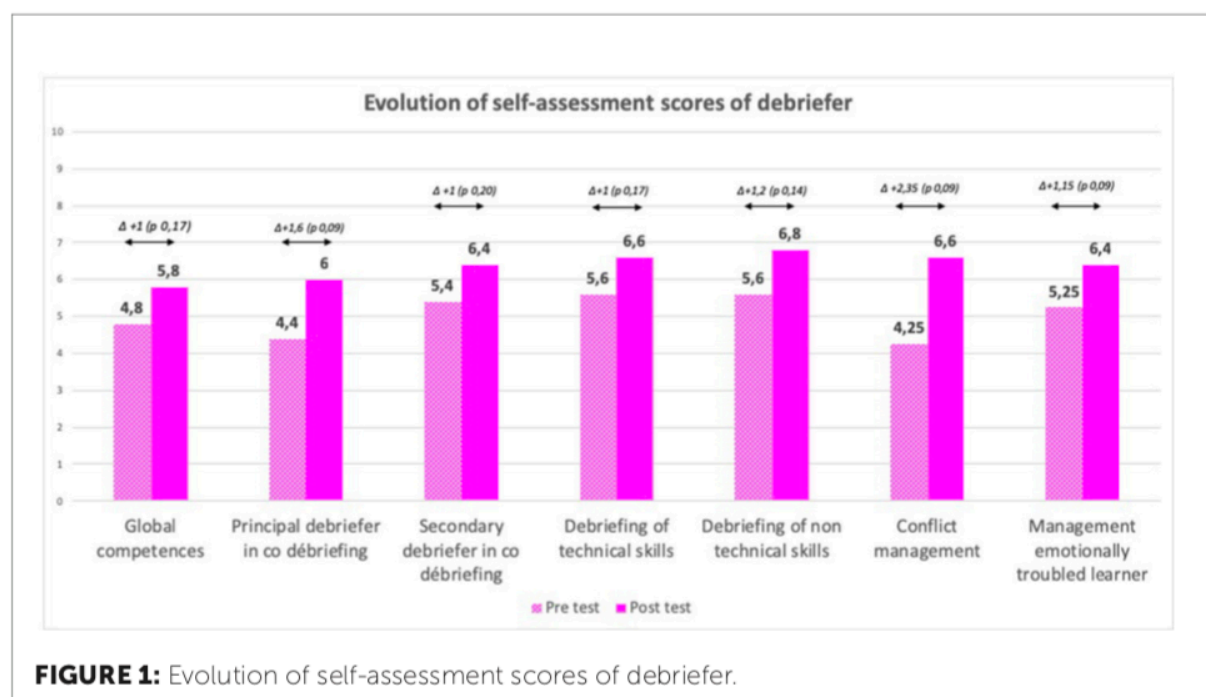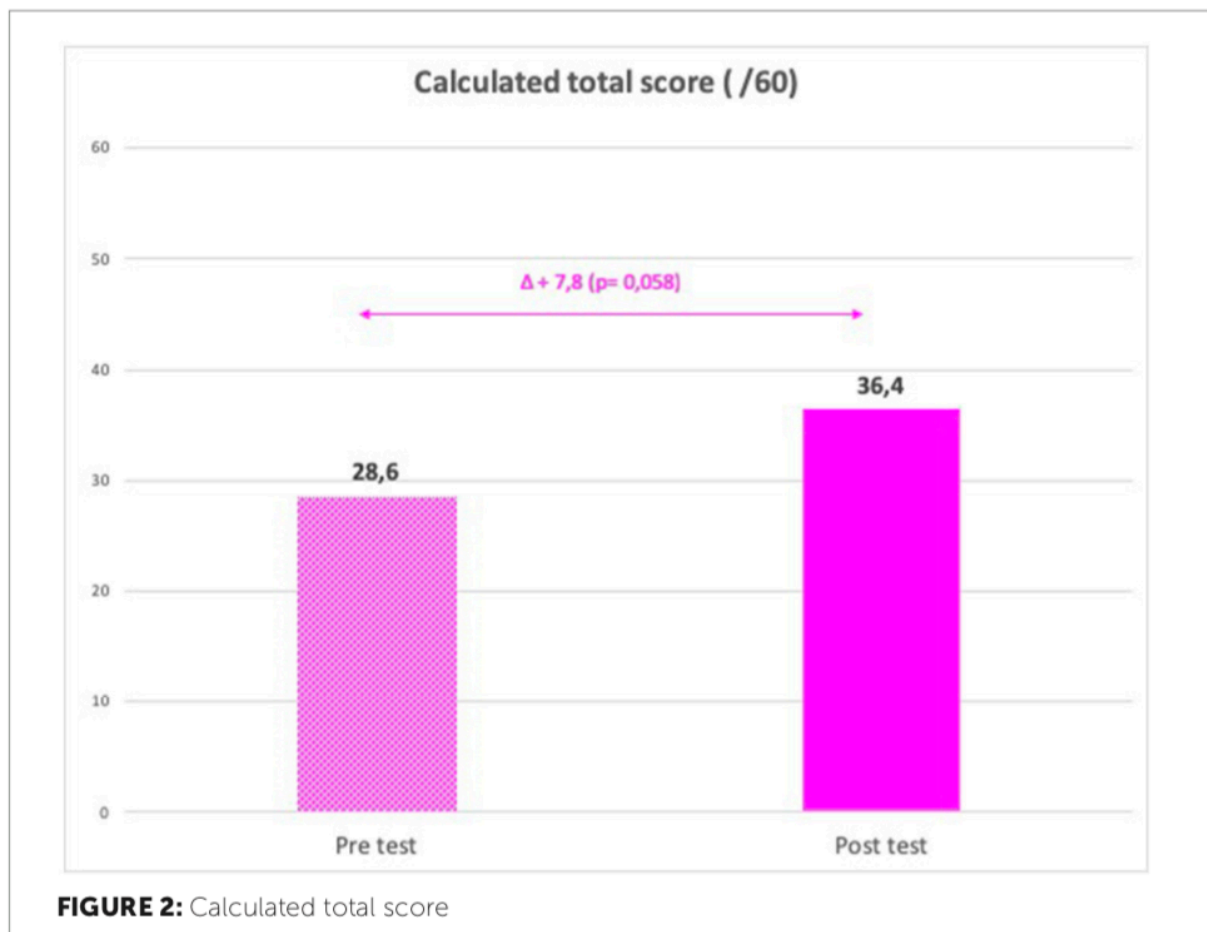
DISCUSSION

This study helps to highlight the importance of continuing education in order to develop the debriefing skills of instructors in healthcare simulation. The high satisfaction rate of 9.6/10. The learners have emphasized the need for such training and this regularly.

Concerning the hetero-assessment, the multiple-choice questions are not yet useable. This preliminary investigation allowed us to modify the questionnaire for the continuation of the study in order to be able to complete the analysis by a hetero-assessment of knowledge.

These first results, showing an increase in self-assessment scores, are encouraging.

The average global skill score increased by 1 point with an average score of 4.8 (±1.9) before versus 5.8 (±1.6) in post-test. The main bias of these preliminary results is the sample size. Indeed, the small number of participants does not allow to highlight any significant difference. But it is reasonable to think that continuing the inclusions during 1-year would provide sufficient power. These different results are probably inherent in the teaching method used [8]. On the one hand, the debriefing situations whose complexity increases according to the scenarios allow participants an experiential learning by confronting different personalities or traps of debriefing.

On the other hand, the debriefing of debriefing promotes a reflective thinking of simulated debriefings. This time is enriched by interactivity and exchanges of practices; as well as cognitive inputs (such as debriefing structure [9-12], or reflexive analysis tools such as "advocacy inquiry" [13,14], or difficult debriefing tools). The simulation guideline recommend debriefing assessment, either by peers or by a rating scale such as the DASH (debriefing assessment for simulation in healthcare) [2]. These evaluations are used to assess the structure of the debriefing and to provide conceptual guidelines for improving debriefing [15-21]. But they do not allow, contrary to the debriefing of debriefing, to explore the intentions behind the actions of the debriefer. Debriefing of debriefing allows the analysis of active reflective processes during simulated debriefing. Understanding these reflective processes allows the learner to identify areas of improvement and tools that are more readily transferable in practice than conceptual guidelines [8,13,14].

However, despite these obvious advantages, it should be noted that the debriefing of debriefing technique requires that the referent instructor have solid skills, a rich experience in debriefing and specific skills. Mastery of debriefing of debriefing techniques is a specific skill to possess.

One of the tools of our training is the use of a specific debriefing grid. This allows to identify and effectively record the techniques of debriefings used as technical and non-technical skills, structure, verbatims... It can help structure the debriefing of debriefing. We believe that it is a method for structuring and homogenizing continuous formations for debriefers.

The other essential skills are a thorough knowledge and appropriation of non-technical skills [3,22]. Indeed, the average scores of skills for the management of difficult debriefing increased by +2.35 points for conflict management and +1.15 for the management of an emotionally troubled learner,

as well as the average score of skills to debrief non-technical skills (+1.2 point). These results are probably dependent on the skill level of the referent instructor framing this formation in particular in human factors.

In our study, one of the strong elements of our pedagogy is to integrate human factors at every stage of the learning process. This expertise in human factors and therefore in non-technical skills is probably one of the factors influencing these results.

To complement these benefits in improving the debriefing skills, we have developed a non-technical skills summary for the participant. This grid summarizes the main expectations of each non-technical skill of the debriefer and allows an initial assessment for each of them. It can thus serve as a support in the learning process of the debriefer either by self-evaluations or by hetero evaluations by peers or in future trainings. This tool has to be validated but it exists in other fields such as aeronautics [23] and has demonstrated its effectiveness.

CONCLUSION

Although essential, continuous training of instructors in healthcare simulation is poorly developed in France. Simulation training using debriefing of debriefings would allow for an increase in overall debriefing skills. These preliminary results will be expanded in our study.

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