

Highlights

Debriefing framework impact on the use of debriefing in a critical care environment: a quantitative study

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- Debriefing can be hard to conduct when it is most needed due to time constraints.
- The team and organisational structure is an important aspect to consider when introducing a debriefing framework.
- The method used for introducing a debriefing framework has an impact on its acceptance.
- Debriefing and its benefits is not universally understood among critical care nursing staff.

Debriefing framework impact on the use of debriefing in a critical care environment: a quantitative study

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ABSTRACT

Objective The present study aimed at assessing the impact of introducing an in-field debriefing framework in intensive and postoperative care nursing both in term of debriefing use, but also in term of debriefing culture.

Design and method A descriptive design with a quantitative method was used in the form of an observational cohort research study. This study was conducted in an intensive care unit and two post-anaesthesia care units in a university hospital in Norway through the use of a survey after each shift. The data was collected using face to face interviews, the first of which was conducted between September and October 2019, 3 weeks before the introduction, while the second was conducted between January and February 2020, 9 weeks after the introduction.

Results The first round of data collection resulted in 336 responses in which 19.6% of the teams reported having conducted a debriefing, while 80.4% reported not conducting any debriefing. The second round provided 319 responses where 24.1% used debriefing, and 75.9% did not.

Conclusion Overall, although a slight increase in debriefing use was observed, this change was however not significant, but also inconsistent between units. One unit reported more debriefings before the introduction of the framework, whereas the second unit reported a significant increase in debriefing use; the third unit's debriefing use remained relatively unchanged after the introduction. The structure and participation in debriefing sessions showed a small, although not significant, increase.

1. Introduction

Error rates in the ICU are higher than in other units and are associated with worse adverse outcomes [5]. Patients in the ICU are more likely than other hospitalised patients to experience medical errors, due to the complexity of their conditions, need for urgent interventions, and considerable workload fluctuation [4]. Similarly to the ICU, the post-anaesthesia care unit is also subject to errors occurring due to the hectic nature of the environment where patients are continuously being admitted and discharged.

The purpose of debriefing in healthcare is to learn from previous experiences and improve patient safety [1, 3]. Structured debriefings after a life-threatening emergency can help clinical teams improve learning, enhance non-technical performance and improve patient focused outcomes [2]. Debriefing has been incorporated in several clinical fields, including critical care, surgery, internal medicine, and neonatology. This, however, has been mainly focused on enhancing learning in simulation and learning

environments [3] with limited use in clinical practice.

The lack of opportunities for debriefing in clinical practice may reflect barriers to the implementation of debriefing. There is often insufficient time within busy acute areas to debrief after the occurrence of critical incidents, moreover, the lack of clear guidance and policy may be a further barrier to the clinical use of debriefing [9]. Conducting debriefings is challenging for overloaded teams having to handle new events taking place before they had the chance to discuss the previous event [1].

Various debriefing frameworks have been proposed to help with conducting debriefing in clinical practice environments, their use is however still limited, and little research has been conducted on their effectiveness outside training and simulation. In this study, we use the introduction of the TALK framework to a Norwegian university hospitals' critical care units as an opportunity to investigate the impact of such frameworks on the debriefing use and culture. TALK is a debriefing framework designed to guide structured team into self-debriefing in clinical environments. It allows for debriefing even for the smallest events, by being easy, practical, short and effective [11]. It was proposed in June 2014, and today it is an ongoing EU-project: similar studies to this one are being conducted in Spain and Wales to assess its impact.

* This research has been conducted in the context of the preparation for a Master of Science in intensive care nursing degree

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The objective of this study is to assess the impact of introducing a debriefing framework in the critical care environment.

2. Design and method

To address the objective of this study a quantitative method was chosen. More specifically, an observational cohort study has been conducted.

This study was conducted through a survey to collect data before and after the introduction of the debriefing framework. The results of the data collection provided us with a baseline (Pre) to be used for comparison with the second data collection (Post 9w) for the purpose of inferring the correlation and potentially the causation between the use of debriefing and the introduction of TALK.

Participants were recruited from three units in the hospital: the intensive care unit (ICU) and the 2 post-anaesthesia care units (PACU1 and PACU2). All staff members who were at work at the time of the data collection were asked to participate.

In the ICU, the healthcare staff works in teams. The teams are very varied, and are generally setup on an as-needed basis. These teams are often multidisciplinary and defined by the tasks and procedures needed for a specific patient. In the post-anaesthesia care units on the other hand, teams are organised differently. A PACU team is not patient specific, but defined by the nurses who work in the same section: a section hosts a group of patients, the responsibility of these patients is divided between the nurses in the section with each nurse becoming individually responsible for 1 to 3 patients.

The participants in our study did not receive any specific training in the use of the TALK debriefing framework prior to the first data collection. This doesn't exclude the fact that some participants may have had prior knowledge about debriefing or TALK.

2.1. Data collection

The first round of data collection was conducted from the 23rd of September 2019 until the 7th of October 2019, while the second data collection started on January 20th, 2020 and ended on February 3rd, 2020. After each shift, critical care staff were asked through face-to-face interviews about their use of debriefing during the shift, the answers were collected using an interview schedule.

2.2. Data analysis

The data was analysed using descriptive statistics with GNU R, a program for statistical computing. The statistical significance was set to $p < .05$ for all tests. The statistical population consists of teams according to the definition of team laid in section 2.

Descriptive statistics such as frequencies, percentages, means and standard deviations were used to assess study sample, while Pearson's chi-squared test (χ^2 test) was used to test whether there were a statistically significant difference across the measured parameters.

2.3. Ethical approval and considerations

This study has been approved by the hospital's data protection officer, while the usage of the collected data for the master project associated with this study has been approved by the hospital's research department. The Regional committee for Medical and Health Research Ethics has also reviewed this study and decided that an application for permission to conduct the study was not necessary.

All data collected concerns hospital staff and is voluntary and de-identified. Participants were also informed that none of their or their patients' personal data was collected, and that they had the right to withdraw from the study even after submitting their responses.

3. Results

The data collection provided us with 655 responses from 3 different units, with 336 responses collected before the TALK introduction and 319 collected after.

Before the TALK introduction, 19.6% of the teams used debriefing, while 80.4% did not conduct debriefing. After the introduction of TALK, 24.1% of the teams used debriefing, and 75.9% did not. This confirms the assumption that debriefing is in general of limited use in clinical environment. A slight increase of debriefing use after the introduction of TALK can be observed, however this change cannot be considered significant with a p value of 0.164.

3.1. Debriefing use

Due to the different team structures in the different units, these units have also been evaluated individually. The change in debriefing use after the introduction of TALK turned out to be different between the observed units, with

Unit		No (N=512)	Yes (N=143)	Total (N=655)	<i>p</i> value
PACU1	Phase				0.173
	Pre	87 (73.7%)	31 (26.3%)	118 (100.0%)	
	Post 9w	68 (81.9%)	15 (18.1%)	83 (100.0%)	
PACU2	Phase				0.309
	Pre	19 (65.5%)	10 (34.5%)	29 (100.0%)	
	Post 9w	8 (50.0%)	8 (50.0%)	16 (100.0%)	
ICU	Phase				0.004
	Pre	164 (86.8%)	25 (13.2%)	189 (100.0%)	
	Post 9w	166 (75.5%)	54 (24.5%)	220 (100.0%)	

Table 1

Debriefings done per unit before and after the TALK introduction

one of them showing a significant increase, the second showing a slight decrease and the last one remaining stable.

In PACU1 a decrease in debriefings done was observed, going down from 26.3% (N=31) before the introduction of TALK to 18.1% (N=15), this change is however not considered significant with a *p* value of 0.173. On the other hand, PACU2 did not see a significant change with a *p* value of 0.309, this unit is however relatively small, as it represents only 6.9% of the collected data. On the other hand, the ICU unit saw a significant change in debriefings done, going up from 13.2% (N=25) to 24.5% (N=54) with a *p* value of 0.004. Table 1 shows an overview of the debriefings being done before and after the introduction of TALK for each unit.

3.2. Debriefing culture

Across the surveyed units, before the introduction of TALK 63.6% (N=42) responded negatively, while 36.4% (N=24) did report following a structure. The majority reported using a variation of the “*What happened, Why, How, What could be done differently?*” structure, and only 1 report mentioning the use of TALK was registered.

After the TALK introduction, the 50% (N=38) responded negatively and 50% (N=38) responded positively. While we can see a small increase in the number of structured debriefings, this change is not significant with a *p* value of 0.102.

Among the teams who conducted debriefing sessions, 68.2% (N=45) reported that the whole team had participated before the introduction of TALK, and 75.0% (N=57) reported a whole team participation after the introduction. This change, while positive, is also not significant with a *p* value

of 0.368.

Nurses were the healthcare group who took the most initiative in debriefing both before 83.1% (N=64) and after 78.8% (N=52) the introduction of TALK. Debriefs initiated by doctors showed an increase from before 9.1% (N=6) to 16.9% (N=13) after the introduction. Managers and administrators hardly took part in the debriefings during the 1st data collection and did not participate at all in the 2nd data collection.

3.3. Debriefing outcomes

Before the introduction of TALK, 59.4% (N=38) reported that their debriefing sessions lead to specific measure or measures being taken after a debriefing session to improve or maintain patient safety. This number increased to 67.5% (N=52) after the introduction of TALK. A positive change, although not significant with a *p* value of 0.316.

When looking at the type of measures taken, these did not show a significant change either after the TALK introduction with a *p* value of 0.956. Table 2 shows an overview of the measures taken as a result of a debriefing session both before and after the introduction of TALK.

4. Limitations

This study has been conducted in the context of a preparation for a Master’s thesis in intensive care nursing, this meant that it had to be conducted within a relatively short time frame.

The units representation in the data was not uniform, with more data samples coming from the ICU unit and con-

	Pre (N=38)	Post 9w (N=52)	Total (N=90)	<i>p</i> value
Measure taken				0.956
Procedural ¹	9 (23.7%)	11 (21.2%)	20 (22.2%)	
Treatment ²	6 (15.8%)	9 (17.3%)	15 (16.7%)	
Medication ³	6 (15.8%)	9 (17.3%)	15 (16.7%)	
Organisational ⁴	6 (15.8%)	8 (15.4%)	14 (15.6%)	
Communication ⁵	6 (15.8%)	7 (13.5%)	13 (14.4%)	
Confirmation ⁶	2 (5.3%)	1 (1.9%)	3 (3.3%)	
Other	3 (7.9%)	7 (13.5%)	10 (11.1%)	

¹ Change the in procedures used for treatment

² Change in the treatment or treatment plan

³ Change in medication or its administration

⁴ Change in the team structure or higher up in the whole unit or even hospital

⁵ Change in communication methods or the need of more communication

⁶ Changes or decisions made earlier are working

Table 2

Overview of the measures taken as a result of a debriefing session

tributing a larger number of samples at 62.4% (N=409) while the PACU2 contributed a much smaller one at 6.9% (N=45). This is mainly due to the fact that the ICU has a larger number of teams compared to the PACUs. The ICU and PACU1 are running 24/7, PACU2 is open Monday-Friday 9-17. Moreover, 22% of the staff did not take part of the TALK introduction courses, which means they were not familiar with TALK during the 2nd data collection.

5. Discussion

The purpose of this study was to investigate whether the introduction of a new debriefing framework had any impact on clinical debriefing in the critical care environment.

5.1. Debriefing use

In term of impact, the introduction of a debriefing framework into the critical care environment did not have a perceivable or statistically significant impact on the number of reported debriefing sessions. This outcome was not anticipated as the introduction of TALK in a university hospital in Cardiff, Wales (CVUHB) showed a more significant increase¹ in debriefing use.

Many aspects could have contributed to this disparity, particularly, the introduction in Cardiff was done through 50 short in field conversations over 3 days, between TALK experts, local ambassadors and the staff, while on the other

¹The introduction was conducted in the short surgical stay unit and operation rooms, and led to a significant increase ($p = 0.039$) 3 months after its introduction [10]

hand, the introduction in this study was done through a formal introduction with little or no in field training. This introduction was conducted through a 2 hours long course structured as a short introduction to TALK itself followed by 2 simulation exercises.

Another possible reason for not observing a significant increase in debriefing use is simply the length of this study: the time frame between the introduction of a new method or tool in an organisation and the observation of effects relating to this introduction could be quite long [7].

When looking at the units individually, the change of the number of debriefing sessions conducted was different. An interesting aspect was that 2 of the 3 surveyed units showed a change after the introduction of TALK while the third unit did not show any significant change as it was already conducting a substantial number of debriefing sessions before.

In the ICU, a significant increase of debriefing sessions done was observed after the introduction of TALK ($p = 0.004$). This increase could be linked to the team structure in the ICU, where a larger number of small multidisciplinary teams is in place. In this team structure, multiple staff member end up caring for the same patient requiring more team communication and coordination. The patients in the ICU are also generally severely or critically ill, which means that there are more opportunities for unexpected events to occur compared to other units: the ICU teams might have seen the benefits and practical uses of debriefing more than the other teams.

The second unit to see a change is PACU1, with a decrease

in debriefing use after the introduction of TALK. This change is however not significant ($p = 0.173$). This could be explained by the fact that many have reported using debriefing before the introduction of TALK as a tool for training the interns who were present before the introduction but not after. Also the team aspect in this unit is not as strong as in the ICU: each nurse, individually, can be responsible for 1 to 3 patients during their shift.

As for PACU2, the use of debriefing was in general relatively high, both before and after the introduction of the TALK framework. The leadership in this unit has recognised the importance and benefits of debriefing, and has been working towards having debriefing sessions conducted in the teams. This is inline with research from Allen et al. [1] who describes how important it is for the leadership to create an environment for employees to learn how to use a new tool, and how important it is with maintenance and training.

5.2. Debriefing culture

Before the TALK introduction, structured debriefing was mostly reported as following a “*What happened, Why, How, What could be done differently?*” structure, whereas after the introduction, the majority reported using TALK or “almost TALK”. This change could be attributed to the fact that nursing staff started equating debriefing with TALK, and when asked whether they did debriefing they answered as if TALK and debriefing referred to the same thing during the 2nd data collection.

On the team participation front, no significant change was observed, nurses remained the healthcare group who took the most initiative in debriefing both before and after the TALK introduction. This could simply be attributed to the fact that the nurse-patient ratio is much higher than the doctor-patient ratio.

5.3. Debriefing outcomes

The TALK introduction did not have a statistically significant impact on the number of reported measures taken after a debriefing session, nor on their type, as they remain very similar to those reported before the introduction. This could be connected to the fact that no significant increase in debriefing has taken place. We expect to see a change in the measure taken if the use of TALK could be increased, as this would allow for taking measures relating to the smallest of the events.

Most of the reported improvement measures (N=20) were

related to *procedures or guidelines*. In a 2018 report from the Norwegian Directorate of Health [8], 43.8% of all of the reported mistakes in patient care were related to clinical processes or procedures, with the most reported reasons being “Guidelines or procedures not followed” and “Started procedures or guidelines too late”. These mistakes resulted in 235 deaths that might have been avoided. This is a strong indicator that debriefing, when used effectively, could increase technical knowledge in teams and reduce the incidence of procedural mistakes and improve teamwork, which could in turn lead to improved patient safety.

5.4. Barriers for debriefing

The most commonly cited reason for not doing debriefing was that it was deemed unnecessary or not needed. During the survey, debriefing was generally perceived and described as being a tool reserved to unexpected situations only. Related to it, the third most common reason for not conducting a debrief is that the patient being cared for was seen as stable. Many of the participants reported that they did not do debriefs because there was nothing to debrief about, and a few felt that they only needed to use debriefing after severe events.

This reported reason remained the most common both before and after the introduction of TALK. This could indicate that the overall understanding of the positive aspects of debriefing remained limited even after the introduction as debriefing benefits are not limited to big events or fatal outcomes and can also be beneficial to teams after daily routines [6].

The second most commonly reported barrier toward debriefing was finding the time to do a debrief, this finding agree with previous research on the matter, where staff found it difficult in practice to conduct debriefs because of lack of opportunities in hectic environments [9]. Allen et al. [1] also pointed out that overloaded teams having to handle new tasks taking place before they could discuss the previous one was a challenge standing in front of debriefing in the clinical environment.

The main challenge standing in the way of in field debriefing, is that it is hard to conduct when it would be needed the most, mainly due to the fact that whenever adverse events occur, the focus is generally around reversing or limiting the effects of these events. With limited time at hand, conducting debriefing becomes a second level priority.

6. Conclusion

Before conducting the research, the assumption was that debriefing was generally understood among the critical nursing staff, an assumption that turned out to be incorrect. The understanding of debriefing and its benefits, let alone how debriefing should be structured, was limited and remained so even after the TALK introduction.

The observed difference between the surveyed units could also not have been foreseen. This begs the question: *given that the 3 surveyed units have a large staff overlap, what are the differences that led to inconsistent change in debriefing use after the introduction?* Exploring these differences would help in better understanding the effect of team and organisation structures on the acceptance of debriefing.

Overall, one of the main challenges standing in the way of in field debriefing, is that it is hard to conduct when it would be needed the most. Whenever adverse events occur, the focus is generally around reversing or limiting the effects of these events. With limited time at hand, conducting debriefing becomes a second level priority. Conversely, without the occurrence of unexpected or unexpected events, debriefing is seen as unnecessary.

7. Competing Interest

The authors declare that they have no known competing interests or personal relationships that could have appeared to influence the work reported in this article.

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