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Exploring the volunteer first aider's experience post-resuscitation

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Abstract

Objectives: This study aims to identify themes associated with St John volunteer first aiders' post-resuscitation experience following an out-of-hospital sudden cardiac arrest, and to make suggestions for future practice in education and research.

Methods: This study was exploratory and descriptive in design, utilising a single focus group as a means of data collection. All five participants from a single resuscitation event participated in the focus group. The focus group was electronically recorded and transcribed verbatim. The results were then thematically analysed.

Findings: The focus group participants described four themes associated with successful resuscitation of a casualty following sudden cardiac arrest. These themes were: post-resuscitation casualty management; interactions with health care professionals; critical incident stress management and learning about the casualty's outcome.

Discussion: Education of first aid service providers should include post-resuscitation casualty management, this could be achieved by including the chain of survival in its entirety rather than the DRABCD (danger, response, airway, breathing, circulation and defibrillation) resuscitation action plan only. Similarly, ambulance paramedics require an understanding of semi-automatic external defibrillators as used by first aid service providers. In particular, the limitations of semi-automatic external defibrillators should be included in education programs for ambulance paramedics and emergency department staff. Finally, first aid service providers should implement formal mechanisms to provide feedback to participants regarding casualty outcomes following a critical event.

Keywords

cardiac arrest; defibrillation; experience; first aid resuscitation; volunteer

Literature Review

Within the literature non-medical personnel are referred to as bystanders or laypersons and are defined as 'one who has no medical expertise and lacks the medical knowledge and experience of a health care professional' (p 408).¹ The majority of St John Ambulance Australia volunteer first aiders are laypersons with additional resuscitation

training and education, but lack the experience and knowledge of health care professionals. St John volunteer first aiders are trained to respond to out-of-hospital sudden cardiac arrest by utilising resuscitation techniques, such as bag-mask ventilation and semi-automatic external defibrillation. They are trained to increase the casualties' chance of survival by reducing the time in implementing aspects of the 'chain of survival': early access, early cardiopulmonary resuscitation, early defibrillation and early advanced life support.² This review will outline existing literature regarding post-resuscitation casualty management, layperson resuscitation experience and critical incident stress management.

In the initial stages following resuscitation the first aider should provide airway and breathing support, deliver supplementary oxygen and monitor the casualty's work of breathing and circulation characteristics. Current literature regarding the post-resuscitation management of a casualty examines supportive measures such as; regulating temperature,^{3,4} glucose control, respiratory, cardiovascular and central nervous system support.⁵⁻⁸ However, the lived experience of volunteer first aiders in post-resuscitation casualty management could not be located when undertaking a systematic search of PUBMED, MEDLINE and CINAHL databases.

Previous studies that have examined the lived experience of laypersons response to resuscitation have excluded people with additional training such as lifeguards and emergency services personnel. Several studies have identified layperson reactions to resuscitation interventions when the casualty is a stranger.^{1,9-12} Additionally, one study reported the reactions of persons performing resuscitation on a family member.¹³ Skora and Riegel¹ commented that layperson experience can be attributed to whether the first responder had a positive or negative experience with ambulance paramedics when they arrived at the scene of a resuscitation. Additionally, it was identified that casualty outcome, time from collapse to the arrival time of emergency medical services and availability of debriefing infrastructure are associated with the laypersons' resuscitation experience.¹⁰ In particular fatal casualty outcome and lack of debriefing were independently associated with a negative experience.¹⁰

Post-traumatic stress disorder is defined as a normal reaction to an abnormal situation.¹⁴ In establishing mechanisms to reduce the occurrence of post-traumatic stress disorder emergency service organisations have implemented critical incident stress management as common practice.¹⁵ However, controversy exists within the literature regarding the risks and benefits of critical incident stress management for emergency service personnel. Several studies suggest critical incident stress management exacerbates rather than improves symptoms related to post-traumatic stress disorder.^{14,15} Bledsoe¹⁵ recommends using critical incident stress management techniques with caution until its effectiveness is verified.

Whilst the current literature explores the experience of persons who perform resuscitation, the literature excludes laypersons with additional training such as volunteer first aiders. Such experience is important to explore as it may provide a means of enhancing the current experience of first aiders. Therefore, this study aims to identify themes associated with the St John volunteer first aiders' post-resuscitation experience following an out-of-hospital sudden cardiac arrest, and to make suggestions for future practice in education and research.

METHOD

Design

This study used an exploratory and descriptive design, utilising a single focus group as a means of data collection to explore the volunteer first aiders' experience following resuscitation.

Ethical Considerations

Ethical approval was granted by the St John Research Ethics Committee, all participants provided written informed consent to participate and pseudonyms are used throughout this article.

Sample

The population studied was volunteer first aid members of St John Ambulance Australia. The sample for this study included St John volunteer first aid members who were directly involved in a single real life resuscitation event. Members not involved in this single resuscitation event were excluded from this study. Participants were recruited in a purposive nature from a register of members who attended the public event where the resuscitation took place. Upon identification of relevant members, an invitation and information sheet was sent to the potential participants. Following recruitment of all five members who participated in the resuscitation event, data collection was commenced.

Data Collection

Various methods for data collection were considered by the authors, such as questionnaires, in-depth interview and a series of focus groups. However, since the phenomenon being studied has previously not been explored within the literature and caring for a casualty in the post-resuscitation stage occurring infrequently amongst the studied population. A single focus group was utilised as the method for data collection. The focus group provided an opportunity to collect qualitative data within a social context, providing information regarding the participants lived experience, such as attitude, perception and opinion of the resuscitation event.^{16,17} Disadvantages of using a focus group were considered by the researchers prior to undertaking data collection, including, the possibility of one participant influencing or dominating other participant's level of participation; therefore the researchers were conscious to ensure discussions remain inclusive and focused.¹⁷ During the focus group session electronic media was used to capture the dialogue of the researchers and participants. The audio data collected during the focus group was transcribed verbatim immediately following the focus group.¹⁶

Data Analysis

Once transcription occurred the textual data was thematically analysed in a detailed line-by-line approach as described by Van Manen.¹⁸ This approach examines individual sentences for meaning associated with the experience being explored, such as the participant's attitudes, perceptions and opinions. Due to the subjective nature of this method of data analysis, the researchers of this study independently reviewed the de-identified transcribed data to identify themes within responses. Comparisons of themes outlined by the researchers enhanced the reliability and validity of the data analysis process.

FINDINGS

Description of Participants

In total the five participants had 29 years of experience within the first aid environment. This experience ranged from two to twelve years. All participants held an advanced resuscitation certificate at the time of the resuscitation event, which includes the use of oxygen therapy and semi-automatic external defibrillation. Previously, two participants had been involved with a resuscitation event. Additionally, one of the participants had completed training as an enrolled nurse, and one of the participants had completed their first year of registered nurse training. Two participants had recently completed the Queensland Health Pre-Hospital Trauma Life Support Course.

Thematic Analysis

The focus group participants described specific aspects of the resuscitation event. The following findings concentrate on aspects post-resuscitation and include; casualty management following resuscitation, interactions with health care professionals such as ambulance paramedics and emergency department staff, critical incident stress management and learning about the casualty's outcome.

"I imagined get a pulse, kick back and have a coffee, not that you would, but I imagined once you get a pulse, you can relax ... but that wasn't the case"
(Anthony)

During the period from return of spontaneous breathing and circulation to when the ambulance paramedics arrived, the volunteer first aiders describe aspects of their casualty management. In this post-resuscitation phase the participants state that the management of the casualties airway was unlike their training. The first aiders were unable to insert an oropharyngeal airway due to the jaw stiffness and were expecting some regurgitation.

"He had a little drool out the side of his mouth"
(Kathy)

"One thing that did surprise me ... there wasn't any apparent aspiration certainly not that made it up into his mouth"
(Marcus)

Due to the now combative state of the casualty, the first aiders had difficulty in maintaining effective oxygenation.

"As things went along he became more and more combative and it just became a bigger job to try and keep that oxygen mask anywhere near him"
(Marcus)

The casualty was continuously monitored for work of breathing and circulation characteristics. One participant who was monitoring the casualty noted that the casualties' heart rate was tachycardiac post-defibrillation.

"After the second shock when it [the semi-automatic external defibrillator] said attend to your casualty, the first thing I did was went for a pulse and it was tachy ... it was a beat and then a bit of a hesitation and then a beat and then it just sort-of raced into life"
(Marcus)

The participants reflected on their training and education regarding the post resuscitation management of a casualty. In particular, the participants discussed the management of the combative casualty.

“Out of all the training we have had on resuscitation, when he started becoming combative, we have never practised that. Literally I was holding his feet at this time and he was throwing me about, that’s how combative he was”

(William)

“After you’ve defibrillated, they can be combative, they can be thrashing about, that’s not something you’re taught”

(Jessica)

“I always imagined that when you do CPR, shock someone, you get a pulse back, it’s just a case of rolling them onto their side and they will be just unconscious, I always imagined it that way. But with this resus it was totally the opposite”

(Anthony)

Upon arrival of the ambulance paramedics, the participants stated that their reaction was one of relief and reprieve. Overall, the interaction between the ambulance paramedics and the first aiders was positive.

“I was reasonably pleased to see them, because at that point he had been combative for a good ten minutes, we were fighting to keep the mask on and keep him settled down”

(Marcus)

The participants described the initial reactions of the ambulance paramedics when they were informed that the first aiders had used a semi-automatic external defibrillator.

“I’d gone out and met them and said ‘the casualties up here a forty-nine year old male cardiac arrest, we have shocked him two times, he now has a pulse and is breathing’. As soon as I mentioned the word ‘shocked’, I remember the look on the two ambos faces; they looked at each other and went ‘ooh’”

(Anthony)

During interactions with the ambulance paramedics, the participants highlighted the fact that the ambulance paramedics were unaware first aid service providers use semi-automatic external defibrillators.

“That particular paramedic didn’t know that St John did that [used semi-automatic external defibrillators]”

(Kathy)

The ambulance paramedics together with the first aiders lifted and transported the casualty to the ambulance, once in the ambulance the participants describe a scene of mass activity.

“People were hanging in every door [of the ambulance]”

(Marcus)

The ambulance paramedics had a willingness to involve the first aiders in the on-going management of the casualty and requested assistance during the transportation phase of the casualty to the nearest hospital.

“They wanted someone to go with them. Kathy was in the right position”
(Marcus)

“It was just part of the whole treatment to me, it was just like ‘can one of you guys come with me?’ and I’m the one with the oxygen, I’m still talking to him, I will stay”
(Kathy)

Upon arrival at the nearest hospital, the inclusiveness of the first aiders continued.

“The nurse then greeting them [the ambulance paramedics] then got directed to me for the best history of what we’ve done”
(Kathy)

One participant stated that the ambulance paramedics and hospital staff wanted a real time record or printout of the semi-automatic external defibrillator activities.

“They asked if they could have a copy of what the card said in our defibrillator ... [they wanted] our initial findings, the shocks and whatever our defibrillator could have told them”
(Kathy)

Immediately following the resuscitation event the remaining four first aiders completed documentation as part of the organisations requirements. During this time they conferred with each other regarding the resuscitation event.

“Just clarifies in your mind the series of events, what happened, makes it easier in your mind”
(Jessica)

“Rewriting the casualty report form helped me go through it, yeah we did all the things we could have done”
(William)

The participants stated that over the next few days they had mix emotions surrounding the event.

“I didn’t sleep that well”
(William)

In managing such emotions the first aiders explored their own personal networks for reassurance and support. One participant stated that turning to friends assisted to deal with the situation.

“The next day just talking about first aid, resuscitation and death with mates who have been involved in incidents by turning up to car accidents with very badly

injured people, death. Just talking to them, 'how did you deal with it, this is how I dealt with it', bouncing ideas off each other"

(Anthony)

Whilst this one participant gained support from peers outside the organisation, the remaining participants stayed in close contact with each other. This was done primarily over the telephone and via internet communications. Three days following the event the participants congregated at a local restaurant for an additional debrief.

"At the dinner, we didn't really discuss much; it was more of a social event"

(William)

"The dinner was too noisy to have a proper debrief. You need a quiet room ... you can't risk that what you are going to say is going to be over heard by someone"

(Marcus)

Unfortunately the casualty once transported to the nearest hospital died in the early hours of the following morning. By this time the first aiders had completed their shift and had gone home. The participants described how they learned of the casualty outcome.

"I had a sneaking suspicion he wasn't going to make it"

(Kathy)

"Finding out from a security guard at another event"

(Jessica)

"I was a bit disappointed because I did ask a couple of people if they knew what the outcome was, bearing in mind the casualty's right to privacy but it wasn't until about two weeks later that I found out"

(Marcus)

"I found out via a text message from Marcus"

(Anthony)

"I haven't really heard anything, I didn't know he had passed away, didn't make it, a week or so after the dinner, I went overseas on holiday, so I was sort of out of contact with a lot of these guys. It was just now that I heard he didn't make it"

(William)

The participants stated that they would prefer to know the outcome of the casualty and to have found out via someone in the organisation, rather than from a person who was not directly involved in the event such as a security guard. The participants stated that their rationale for wanting to know the outcome was more as a curiosity rather than a quality improvement measure. Finally the participants concluded that:

"It would be nice if there was a mechanism where by, without going into too many personal details, that the outcome of a casualty could be made available. In a formal sense, not through a back door as has happened"

(Marcus)

DISCUSSION

The literature regarding post-resuscitation care of the casualty refers to the supportive measures in the 'advanced life support' link in the chain of survival.³⁻⁸ No literature exists that explores the lived experience of the volunteer first aider following successful resuscitation at scene. It is during this phase and prior to the arrival of ambulance paramedics that the first aider faces many challenges. This study demonstrated that the volunteer first aiders' post-resuscitation expectation of managing an unconscious, still, compliant casualty may not always be the case. Instead, they experienced a casualty who was semi-conscious, combative and difficult to manage in terms of providing adequate airway support and in the provision of supplementary oxygen. Therefore education of volunteer first aiders in resuscitation should include this possibility of post-resuscitation casualty management. This could be accomplished by integrating scenarios into training that extend beyond the initial DRABCD resuscitation action plan and include more on the chain of survival in its entirety.

Skora & Riegel¹ state that the experience of the layperson in resuscitation can be attributed to their interactions with ambulance paramedics. In this study, the ambulance paramedics and emergency department staff displayed a willingness of the first aiders to assist in the ongoing management of the casualty. Ambulance paramedics and emergency department staff should continue to foster a cohesive working relationship and therefore continue to include first aid service providers in the ongoing management of the casualty where appropriate.

Efforts should be made to increase the awareness of semi-automatic external defibrillators as used by first aid service providers. This knowledge deficit was highlighted by participants during interactions with ambulance paramedics. Similarly, a lack of understanding regarding the ability of semi-automatic external defibrillators to record real-time electrocardiograph and provide a printout of activities was identified by the participants during interactions with ambulance paramedics and emergency department staff. The semi-automatic external defibrillator used only allows for retrospective data analysis of activities. This analysis requires the transfer of information via a data card, in the defibrillator, to a computer with appropriate software. Similar to the need of increasing awareness regarding the use of semi-automatic external defibrillators by first aid service providers, limitations in the use of semi-automatic external defibrillators should be addressed. This could be achieved by including information during basic life support education programs.¹⁹ Additionally, if real time print-outs are deemed to be useful for ambulance paramedics and emergency department staff, more product manufacturers should consider integrating such features into future semi-automatic external defibrillator models.

Controversy exists regarding the risks and benefits of critical incident stress management.^{14,15} This study outlined that individual participants within a resuscitation event engaged in a variety of coping strategies. Strategies included; discussing the resuscitation effort as a group immediately following the event, re-writing casualty documentation, talking with family and friends and of high importance was discussing the event with one another. Debriefing within a public setting was an ineffective technique.

No literature exists outlining the process of learning casualty outcomes. This study demonstrated a rationale for wanting to learn the outcome of the casualty was a matter of curiosity rather than quality improvement. The process whereby the participants were informed of the casualties' outcome frustrated the participants as this occurred via

networks outside their representative organisation. First aid service providers should consider implementing a formal process to inform participants of a casualty's outcome.

Finally, further research is recommended within the area of post-resuscitation experience to gain a greater understanding of the lived experience of the first aider and to determine if current educational tools and techniques are sufficient. Additionally, further research should include a broader spectrum of participants from various resuscitation events to explore alternative experiences.

LIMITATIONS

This study was confined to the examination of a single resuscitation event. Therefore the lived experience of the participants may not necessarily be a true and accurate reflection of every resuscitation effort. Additional methodological limitations were discussed within the methodology section of this article.

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The author has no financial, personal or honorary affiliations with any commercial organization directly involved or discussed in this study.

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References

1. Skora J, Riegel, B. Thoughts, feelings, and motivations of bystanders who attempt to resuscitate a stranger: a pilot study. *American Journal of Critical Care*. 2001;10:408-416.
2. Australian Resuscitation Council, 'First Responder' Guideline. *Australian Resuscitation Council Guidelines no 11.11*. 2006, Melbourne, Australia.
3. Abella BS, Rhee JW, Huang KN, Vanden Hoek TL, Becker LB. Induced hypothermia is underutilized after resuscitation from cardiac arrest: a current practice survey. *Resuscitation*. 2005;64:181-6.
4. Virkkunen I, Yli-Hankala A, Silfvast T. Induction of therapeutic hypothermia after cardiac arrest in prehospital patients using ice-cold Ringer's solution: a pilot study. *Resuscitation*. 2004;62:299-302.
5. Aghababian R, Restuccia MC. Post resuscitation care in the emergency department, is a standardized approach needed? *Resuscitation*. 1991;22:115-21.
6. Smith A, Roberts K. 2003. Interventions for post-traumatic stress disorder and psychological distress in emergency ambulance personnel: a review of the literature. *Emergency Medicine Journal*. 2003;20:75-78.
7. Negovsky VA, Gurvitch AM. Post-resuscitation disease – a new nosological entity. Its reality and significance. *Resuscitation*. 1995;30:23-27.
8. Negovsky VA. The second step in resuscitation – the treatment of the 'post-resuscitation disease'. *Resuscitation*. 1972;1:1-7.
9. Axelsson A, Herlitz J, Ekstrom L, Holmberg S. Bystander-initiated cardiopulmonary resuscitation out-of-hospital. A first description of the bystanders and their experiences. *Resuscitation*. 1996;33:3-11
10. Axelsson A, Herlitz J, Karlsson T, Lindqvist J, Graves J, Ekstrom L, Holmberg S. Factors surrounding cardiopulmonary resuscitation influencing bystanders' psychological reactions. *Resuscitation*. 1998;37:13-20.
11. Axelsson A, Herlitz, J, Fridlund, B. How bystanders perceive their cardiopulmonary resuscitation intervention; a qualitative study. *Resuscitation*. 2000;47:71-81.
12. Yin Lin I, Wang, T. Analysis of Layperson's Attitude to Perform Mouth-to-Mouth Ventilation in Cardiopulmonary Resuscitation. *Annual Disaster Medicine*. 2004;2:67-73
13. Weslien M, Nilstun, T, Lundqvist, A, Fridlund, B. When the unreal becomes real: family members' experiences of cardiac arrest. *British Association of Critical Care Nurses, Nursing in Critical Care*. 2005;10:15-22.
14. Smith A, Roberts K. Interventions for post-traumatic stress disorder and psychological distress in emergency ambulance personnel: a review of the literature. *Emergency Medical Journal*. 2003;20:75-78.
15. Bledsoe BE. Critical Incident Stress Management (CISM): benefit or risk for emergency services? *Prehospital Emergency Care*. 2003;7:272-279.
16. Brink PJ, Wood MJ. Basic Steps in Planning Nursing Research: From Question to Proposal (5th edn), 2001, Jones and Bartlett Publishers, Sudbury, Massachusetts, USA.
17. Krueger RA. Focus Groups: A Practical Guide for Applied Research (2nd edn), 1994, SAGE Publications Inc., Thousand Oaks, California.
18. Van Manen M. Researching lived experience: human science for an action sensitive pedagogy, 1990, The State University of New York, New York.
19. Ranse J. Cardiac Arrest: Can the in-hospital chain of survival be improved? *Australasian Emergency Nursing Journal*. 2006;9:23-27.