CLINICAL PAPER

Public Access Defibrillation: Psychological consequences in responders

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Summary
Background: Adverse psychological reactions are relatively frequent in professional ambulance crews who attend traumatic events, yet appear unusual in lay persons who attempt resuscitation of victims of out of hospital cardiac arrest.

Aim: To investigate the psychological profile of first responders to gain insight into possible factors that might protect them against such reactions.

Methods: Qualitative study of first responders in a community scheme in Barry, South Wales. In depth semi-structured interviews with six subjects were analysed using Interpretive Phenomenological Analysis (IPA).

Results: The study identified a resilience phenomenon in first responders accounted for by certain enabling core beliefs about their role, their capacity, and about the meaning of negative and positive outcomes for themselves. A realistic appreciation of their own limitations, confidence in their ability to perform as trained and being able to handle positive and negative outcomes were prominent features. The ability to act with emotional detachment appears a further protective mechanism. This mindset, loosely described as ‘a philosophy’, protects against the development of adverse reactions to stress or from becoming unduly concerned about negative outcomes.

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The responders had altruistic motives for undertaking the role yet were capable of operating with a high degree of naturally occurring resilience to stress or undermining anxiety. It is the combination of being motivated by altruism coupled with an inherent resilience that appears to be the crucial protective mechanism.

Conclusions: The group demonstrated an apparently innate resilience to the adverse psychological effects of responding with an AED in a PAD scheme. This enables them to operate optimally in stressful situations without experiencing the negative psychological consequences that might otherwise arise. This information may be used to raise awareness about the psychological requirements for the role and to assist screening or selection processes.

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Introduction

Over the last decade several reports have testified to the effectiveness of lay persons using automated defibrillators in public access defibrillation (PAD) schemes.1,2 PAD is now accepted as a crucial strategy in the management of sudden cardiac arrest with internationally accepted guidelines for its development.3

Resuscitation attempts are stressful, and psychological morbidity including post-traumatic stress disorder (PTSD) occurs in emergency ambulance crews who attend such incidents.4–7 This occurs despite extensive training and support mechanisms to prevent it. Similar psychological consequences might be expected in lay responders who act alone, are usually first on scene, yet have modest training and limited experience.

Significant adverse psychological effects were reported rarely in the PAD trial; in only four rescuers in 649 presumed cardiac arrests.8 Studies of bystanders who provided CPR (before the days of PAD) using questionnaires or telephone interviews have similarly reported low rates of negative reactions.9–11 One qualitative study of lay persons trained to use AEDs concluded that insufficient emphasis was placed on the emotional consequences for rescuers. Some of those interviewed indicated that the event had been emotionally traumatic, and the study stressed the need for debriefing to be available.12

In an attempt to define the factors in an individual’s psychological profile that might protect lay responders from developing PTSD a qualitative study was performed in a group who did not apparently suffer untoward effects despite responding frequently to potentially stressful emergency calls. If these characteristics could be defined there would be implications for the training and recruitment of lay persons in PAD schemes.

Subjects and methods

First responders are dispatched by ambulance control centres in response to emergency calls from the public and are expected to manage patients with cardiac arrest before the arrival of an ambulance.13 This includes providing CPR and using an AED. Their psychological profile is not considered in detail during the selection or training of volunteer first responders in Wales.

Six responders (aged 23–55) in the same community scheme in Barry, South Wales volunteered to participate in a qualitative study. Each had been involved in a minimum of 25 emergency responses and none showed evidence of PTSD or other adverse psychological effects. To avoid influences from other experience, individuals belonging concurrently in other volunteer schemes like St John Ambulance were excluded.

Detailed semi-structured interviews were conducted with each subject and analysed by Interpretative Phenomenological Analysis (IPA), a qualitative methodology specifically designed to identify particular characteristics through the in-depth exploration of individuals’ experiences. Six participants is considered adequate for an IPA study of this type.14–17

The researcher confirmed the participants’ understanding of the study, the nature of the interview and confirmed their consent to proceed. Participants could stop and withdraw from the study at any time. Open-ended questions were constructed to cover more general issues before subjects were directed by more specific questions to areas of particular interest.15 Interviews took place between January and May 2005, lasted approximately 1 1/2 h and explored their experiences, how they dealt with their role and how they operated at various stages when responding.

The interviews were tape-recorded and transcribed; information that identified individuals was deleted. During analysis, emerging themes were listed and connections between them noted. The overarching themes, termed super-ordinate themes, were defined. The main themes clustered under each were termed master themes. In some cases linked sub-themes were discernable within each master theme.

Results

All interviews provided rich information about the experience of responding. Analysis revealed six super-ordinate themes. The master and sub-themes related to them are summarised in Table 1.

A Motivating factors

This highlighted reasons for becoming a first responder. Community spiritedness and enjoyment of contact with people were prominent features and ensured initial involvement as well as continued commitment.

“to be a First Responder you are there, in the community to provide a service to the community.”
Table 1  Summary of super-ordinate, master and sub-themes

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B Reward factors

These included a strong sense of intrinsic pleasure from the job, enjoyment of the challenges presented and the satisfaction derived from a positive outcome.

‘‘I enjoy being part of a service to the community, I enjoy the fact of getting on with people, I enjoy seeing the end result.’’

‘‘I basically just enjoy what I do really, and like to be of service to the community’’.

C Essential requirements for the role

Factors considered vital included:

- A keen interest in first aid
- Ability to remain calm
- Awareness and commonsense

‘‘go in to an assessment mode where you are trying to take in the factors that could be relevant’’

- Multi-skilled ability—the responders talk about using several skills and abilities to help. Being flexible and adaptable and being able to approach a situation with this attitude seems to be an important quality

- A clear understanding of the role and its boundaries

‘‘responsibility to carry out the treatment that you have been trained to, and be responsible enough not to go beyond that’’.

- Confidence

‘‘it’s degree in confidence, degree in assessment, certainly it’s that calculation of the difference between right and wrong really’’
D First responder mindset givens 1

This describes general beliefs or outlook on the role. A clear recognition of personal, situational and role limits was apparent, and amounted to a 'philosophical view of control'. These general role-enabling beliefs appear to be protective factors.

"Quite philosophically really. It's better to have somebody there who can give some assistance until the professionals arrive, than nobody at all."

The participants recognise that they are not in control of the outcome and therefore allow for the possibility that they are going to have limited success.

"You have also got to acknowledge the fact that it may be too late and it might be circumstances beyond your control"

Some of the participants talk about the importance of recognising the boundaries within the role, are aware of the limitations of their own knowledge and of the first responder role per se.

"I think you have got a responsibility to carry out treatment that you have been trained to and be responsible enough not to go beyond"

E First responder mindset givens 2

This describes mindset characteristics that help while waiting or when responding. The ability to operate on a 'business as usual' basis while waiting for a call featured prominently.

"So, Yes, the emphasis is on just carrying on as normal. I don't try and I don't do anything other than that really, just get on with things".

Strategies to manage adrenaline were important.

"Yes, the adrenaline starts going straight away, as soon as the phone goes and all that goes with that then. So you really have just got to try and calm down, be rational and not get taken over by the adrenaline".

When actually responding, a notable feature was a mindset highly focussed on the task itself. Participants describe the importance of confidence, good preparation, knowledge and rehearsal to assist this focus. All describe an emotionally detached state of mind, which helps them remain calm in these potentially stressful situations.

"I'm not conscious of thinking anything actually when it goes, it's just jump"

All the participants talk about having to take a positive mind set when entering into a situation and the need to block out negative thoughts and risk of associated negative consequences.

"I go in there with a positive sort of mental state of mind. Easier said than done sometimes. But unless you think positively then you are possibly going to have a negative end result".

F Post-event functioning

Satisfaction with a job well done was recognised to be an important factor, as was the ability to switch off and move on once an emergency had been dealt with. Post-event discussion seemed to be limited to procedural and technical points rather than emotional factors.

"and then basically all we do is debrief in the car; we go through the protocols ....and that's it then really, off we go. Pack the bags into the boot and go home"

It was clear that participants considered outcomes on the basis of whether or not they had done their best, and not on the basis of the outcome.

"I suppose it's satisfaction knowing that you've done everything in your power to keep the person on that even keel"

The participants say that they stop thinking about the incident the moment they finish the callout.

"and at that stage I think well, that's care handed over, you know, thank you very much and that's that"

Many of the participants welcomed the ability to talk to someone at any time about any issues they have.

"TR (the scheme co-ordinator) is there if you need him. So is G (his assistant) as well, if you need him, at the end of a phone and that's comforting really to think that somebody can be there if you get a problem that you might want answered"

Discussion

Processes that afforded the first responder a strong degree of objectivity and realism in their general approach to the role were identified. A profile of resilience exists whereby individuals operate with a philosophical approach to their role that recognises the degree of control that they have in any given situation. This seems to be enabled by a particularly realistic appraisal of the limiting factors in a situation as well as a similarly objective appraisal of their own personal limitations. An additional important factor was the style of operation characterised by a focused, confident, yet emotionally detached mindset. There is a noticeable absence of any romantic or heroic notion of their personal impact on a situation, however challenging.

Confidence in their practice was identified as important to operate at their best, and afforded protection against undermining factors. This confidence was necessary both during and after an event and enabled the responder to take a learning-oriented and positive look at their performance. While obviously interested in the medical outcome for the individual patient there was an equally a strong emphasis on the learning outcome for the responder and the benefits of this for subsequent performance. These mindset factors seem to account in part for the objectivity that individuals operate with, in spite of their lack of specific training to do so.

The responders identified their ability to switch off while waiting as important. Once they are called how-
ever, each participant described a capacity to manage adrenaline and quickly adopt a strong task focus. Again, this appears to have been achieved without special training. This productive state of mind combines the capacity to be emotionally detached while maintaining a highly focussed mindset that allows confident actions on the basis of confidence in their skills. The absence of worry or negative thinking also enables them to focus on the task. In view of this lack of specific training, it is possible that individuals with this profile naturally self-select themselves for these roles.

The responders interviewed had professional expectations of their performance in any given situation. They consider all situations regardless of outcome to be useful learning opportunities. Their capacity to appraise realistically their personal and situational limitations seems to enable them to restrict their personal expectations and their emotional attachment to the situation and outcome. The ability to adopt a focused, detached, confident mindset while responding suggests a natural capacity to screen out distraction and focus on the task while excluding concerns for themselves.

It is striking that a group of people with predominantly altruistic motivation are capable of operating with a high degree of naturally occurring resilience to stress or undermining anxiety. It is the combination of being motivated by altruism coupled with an inherent resilience that appears to be the crucial protective mechanism. The fact that these participants have developed such a mindset and coping style independent of specific training, is a positive finding that may guide the way in which training might orientate current and future recruits to the reality of the role and to some of the requirements of it. This information may be used to raise awareness about the psychological requirements and to inform screening or selection processes.

It would seem that this study has identified a resilience phenomenon which is at least in part accounted for by the identification of enabling core beliefs about ones role, ones capacity, and about the meaning of negative and positive outcomes for self. It is clear that these factors, loosely described as a philosophy provide the individual with protection against the development of adverse reactions to stress or from becoming overly concerned about negative outcomes. This in turn enables them to operate optimally in the situations they are exposed to without experiencing the negative psychological consequences that might otherwise arise.

**Limitations of study**

The study concerned a small sample of one first responder group. The characteristics might relate to unidentified characteristics of the individuals or scheme itself and the results might not apply more generally. The absence of adverse psychological reactions in the subjects was based on their own reports; no attempt was made by the interviewer to confirm or refute this. The scheme supervisors are in constant contact with the volunteers however, and the possibility of such reactions is stressed in training and regularly sought.

**Conclusions**

The group of lay responders studied demonstrated an apparently innate resilience to the adverse psychological effects of responding with an AED in a PAD scheme. This appeared to be based on a realistic appreciation of their own limitations, confidence in their ability to perform as trained and being able to handle positive and negative outcomes. Despite being motivated by altruism, their ability to act with emotional detachment while actually responding appears a further protective mechanism.

The apparently protective mindset characteristics identified appear to be present without formal training, and deserve further study to help define the ideal psychological profile of such responders in PAD schemes during recruitment and training.

**Conflict on interest statement**

The authors of this paper have no conflicts of interest to declare.

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**References**


