Volunteer responder provision of support to relatives of out-of-hospital cardiac arrest patients: a qualitative study

Astrid Rolin Kragh,1,2 Anne Juul Grabmayr,1,2 Tine Tjørnhøj-Thomsen,3 Line Zinckernagel,4 Mads Christian Tofte Gregers,1,2 Linn Charlotte Andelius,2 Anders Korsgaard Christensen,5 Jesper Kjærgaard,6 Fredrik Folke,2,7 Carolina Malta Hansen2,7

ABSTRACT

Objectives Smartphone dispatch of volunteer responders for out-of-hospital cardiac arrest (OHCA) is implemented worldwide. While basic life support courses prepare participants to provide CPR, the courses rarely address the possibility of meeting a family member or relative in crisis. This study aimed to examine volunteer responders’ provision of support to relatives of cardiac arrest patients and how relatives experienced the interaction with volunteer responders.

Design In this qualitative study, we conducted 16 semistructured interviews with volunteer responders and relatives of cardiac arrest patients.

Setting Interviews were conducted face to face and by video and recorded and transcribed verbatim.

Participants Volunteer responders dispatched to cardiac arrests and relatives of cardiac arrest patients were included in the study. Participants were included from all five regions of Denmark.

Results A thematic analysis was performed with inspiration from Braun and Clarke. We identified three themes: (1) relatives’ experiences of immediate relief at arrival of assistance, (2) volunteer responders’ assessment of relatives’ needs and (3) the advantage of being healthcare educated.

Conclusions Relatives to out-of-hospital cardiac arrest patients benefited from volunteer responders’ presence and support and experienced the mere presence of volunteer responders as supportive. Healthcare-educated volunteer responders felt confident and skilled to provide care for relatives, while some non-healthcare-educated volunteer responders felt they lacked the proper training and knowledge to provide emotional support for relatives. Future basic life support courses should include a lesson on how to provide emotional support to relatives of cardiac arrest patients.

INTRODUCTION

Successful resuscitation after out-of-hospital cardiac arrest (OHCA) is largely determined by early cardiopulmonary resuscitation (CPR) and defibrillation.1–3 Engaging volunteers to bring an automated external defibrillator (AED) to the scene of an OHCA and provide CPR strengthens the chance of survival.4,5 Bystander alert technologies and app-dispatch programmes have been implemented worldwide to enhance survival chances after OHCA.6,7 In 2020, Denmark became one of the first countries to implement a nationwide system for alerting volunteers.8 Most OHCAs occur in private homes, and the most likely witnesses are therefore close relatives or the spouse.9,10 Witnessing a relative in cardiac arrest is a traumatic experience, which often leads to feelings of inadequacy and helplessness for the witness.11–13 Being
present in the first critical minutes after OHCA where early CPR can be lifesaving is an emotionally highly demanding situation. Some relatives lack the confidence, ability or knowledge to perform CPR and may panic. Thus, relatives of OHCA patients may benefit from psychological support throughout the resuscitation process, something that is also increasingly recognised for in-hospital cardiac arrests.

In Denmark, nearby volunteer responders are activated through a phone app (HeartRunner App) when a cardiac arrest occurs. Volunteers are strongly recommended to complete a basic life support course, and 99% of volunteer responders have completed training prior to registration. While basic life support courses prepare participants to provide CPR and use an AED, the courses rarely address the possibility of meeting a relative in crisis. Volunteer responders are therefore not necessarily qualified or prepared to provide support to relatives. Furthermore, it is unknown how volunteer responders and close relatives of OHCA patients perceive and interact with each other during resuscitation.

This study was designed to explore the interactions between relatives of OHCA patients and volunteer responders during and immediately after a resuscitation attempt. Additionally, we examined how volunteer responders and relatives perceived and experienced each other’s presence during resuscitation.

**METHODS**

This study used a qualitative and explorative design using in-depth semistructured interviews guided by Crabtree and Miller and Kvale and Brinkman. In-depth interview allows the researcher to pose open-ended questions to explore participants’ thoughts and feelings. The research was carried out at the Emergency Medical Services in the Capital Region of Copenhagen (EMS Copenhagen), Denmark. We followed the consolidated criteria for reporting qualitative research checklist.

**Author and reflexivity**

All interviews were conducted by the principal researcher. The principal researcher is a woman with a Master of Science in Health Science from the University of Copenhagen and an educated cardiac nurse. The principal researcher has been employed at the EMS Copenhagen since 2018 and has continuously been defusing volunteer responders who need professional follow-up after being alerted to an OHCA. The principal investigator has defused more than 300 volunteer responders and possesses a wide knowledge of the psychological impact of alerting volunteer responders for OHCA. A central part of this study’s integrity is the ability of reflecting the principal researchers’ own position in relation to the subject of investigation. A leading course for the conduct of this study was the principal investigators’ experiences from defusing volunteer responders and their descriptions of interactions with relatives. To increase the understanding of the collected data in this qualitative study, triangulation was done between authors (ARK, AJG, TT-T and CMH).

**The nationwide Danish volunteer responder programme**

The nationwide Danish volunteer responder programme is integrated with all five dispatch centres in Denmark. Dispatchers can activate volunteer responders through their mobile phones in case of a presumed cardiac arrest within a radius of 5.0 km. Volunteer responders are dispatched to either go straight to the cardiac arrest location or to retrieve the nearest accessible AED. Up to 20 volunteer responders are activated in case of a suspected cardiac arrest at all hours of the day. Most frequently, volunteer responders are sent to private homes, where three out of four OHCA occur. When activated, volunteer responders arrive at the cardiac arrest before the ambulance in ~50% of the cases.

Volunteers must be 18 years of age or older, and prior training in CPR is not required, but it is recommended. About one in four of all registered volunteer responders are healthcare personnel, and 99% have a completed basic life support course. Volunteer responders are not expected to provide care for relatives of OHCA patients, and training in psychological care for relatives is not provided by the volunteer responder programme, although an educational video is available through the programme’s website. All volunteer responders receive a survey after being notified of a nearby cardiac arrest. The survey consists of questions related to tasks undertaken by volunteer responders, one of which is whether they provided support for relatives (online supplemental material 1).

**Sampling and interview setting**

A purposive sampling strategy aiming for maximal variation was conducted to recruit volunteer responders and relatives to OHCA patients. As the relative of the cardiac arrest patient was expected to be in a highly sensitive emotional stage, relatives were given time to decide whether to participate. The principal investigator discussed with the relatives what consequences it might have for them to speak about the experience in detail in an interview, while also acknowledging the emotionally sensitive experience it can be to witness a cardiac arrest. Participants were invited 10–12 weeks after the event. This timing was considered appropriate to ensure data were collected as soon as possible after the experience but not during the immediate crisis period. Due to the COVID-19 pandemic, participants were asked whether they wished to conduct the interview online through a video interview or in a live setting. All in-person interviews took place at the emergency medical dispatch centre in Copenhagen and were held by the primary investigator (ARK) between July 2020 and March 2022.

**Patient and public involvement**

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.
Data generation
In-depth semistructured interviews were performed in accordance with two interview guides aimed to facilitate a loose and flexible overall structure. One guide was specifically developed for relatives and one for volunteer responders (online supplemental material 2). The interview guides were developed by three researchers (ARK, TTT and CMH) in collaboration with a chief psychologist with expertise in crisis handling (AKC).

We used NVivo V.10 Software Program for Windows for data analysis. Two researchers (ARK and AJG) coded transcripts and discussed themes with inspiration from reflexive thematic analysis by Braun and Clarke.22,23 The analytical process was a hermeneutical, iterative process moving between coding, thematising, refining codes and reassessing raw data transcripts. A detailed description of methods is available in online supplemental material 3.

Ethical considerations
This study followed the principles outlined in the Declaration of Helsinki as well as the Danish General Data Protection Regulation. Oral and written informed consent was obtained prior to data collection. All participants received a letter containing a thorough description of the purpose of the study. The freedom to choose whether to participate or not was emphasised as was the right to withdraw consent at any moment. All participants were given time to decide if they would sit for an interview. Data were transcribed and stored in a secure web server operated by the Emergency Medical Services Copenhagen. Data were anonymised to protect participants.

RESULTS
Characteristics of the participants
Sixteen participants were interviewed about their experiences with 14 different cardiac arrest situations: five relatives to five different cardiac arrest patients and 11 volunteer responders to nine different cardiac arrest patients.

The participants’ age ranged from 23 to 78 years, with a median of 40 years. Ten participants were female and six were male. Five out of 11 volunteer responders were healthcare professionals. Among relatives to OHCA patients, there was one husband, two wives and two daughters. Participants were selected from all five regions in Denmark. Cardiac arrests took place between November 2019 and March 2022.

Interviews ranged from 35 min to 68 min, with a mean duration of 48 min. Characteristics of included relatives to OHCA patients are presented in table 1. Characteristics of included volunteer responders are presented in table 2.

Main findings
We developed three main themes: (1) relatives’ experiences of immediate relief at arrival of assistance, (2) volunteer responders’ assessment of relatives’ needs and (3) the advantage of being healthcare educated.

The coding framework is shown in table 3.

Theme 1: relatives’ experiences of immediate relief at arrival of assistance
All relatives described a feeling of immediate relief when help arrived, whether it was emergency personnel or volunteers. Relatives were often exhausted from performing CPR and were just grateful for someone to help and support during the chaotic and critical situation.

When relatives talked about their close relatives’ collapse, they experienced a stressful situation and a need to act fast, especially those relatives who were alone with the collapsed patient.

A woman and her spouse were on vacation in their summer residence. They were sitting on their terrace reading newspapers when he suddenly knocked on his chest and told her that his arm was tingling and feeling numb. Shortly after, he collapsed. The woman immediately called the medical emergency number, put the call on speaker and was guided to start CPR. She described the sudden arrival of a volunteer responder:

I was talking to the emergency dispatch center, and she told me to place him safely on a flat surface. I remember she told me I did not push hard enough on the chest; I wasn’t able to compress deeper. But very quickly, these volunteers arrived. My arms were sore, I couldn’t go on any longer. One person came jumping in, and he just immediately switched places with me. I remember I felt SO relieved. (N16, spouse)

Volunteer responders’ participation in the resuscitation often allowed relatives to deal with their own emotions during the stressful situation and to let go of the weight

Table 1 Characteristics of relatives to cardiac arrest patients

<table>
<thead>
<tr>
<th>Participant number/sex</th>
<th>Age range (years)</th>
<th>Familiar relationship with the patient</th>
<th>Time rate from cardiac arrest to interview (days)</th>
<th>Region</th>
<th>Interview time rate (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N12/female</td>
<td>40–50</td>
<td>Daughter</td>
<td>30</td>
<td>South</td>
<td>46</td>
</tr>
<tr>
<td>N13/male</td>
<td>70–80</td>
<td>Spouse</td>
<td>45</td>
<td>North</td>
<td>34</td>
</tr>
<tr>
<td>N14/female</td>
<td>50–60</td>
<td>Spouse</td>
<td>48</td>
<td>Capital</td>
<td>42</td>
</tr>
<tr>
<td>N15/female</td>
<td>40–50</td>
<td>Daughter</td>
<td>31</td>
<td>Central</td>
<td>50</td>
</tr>
<tr>
<td>N16/female</td>
<td>70–80</td>
<td>Spouse</td>
<td>57</td>
<td>Zealand</td>
<td>43</td>
</tr>
</tbody>
</table>

of responsibility for a moment. The arrival of volunteers to assist was perceived as comforting and relieving in a situation where helplessness and exhaustion were dominating feelings:

> It gave us time to breathe. And that’s more important than you could know. To let go for a moment and breathe. (N12, daughter)

### The arrival of competent help

Feelings of relief expressed by relatives were often grounded in the perception of volunteers acting competently. A husband who had been alone with his collapsed wife for 15 min was guided by the emergency dispatch centre to perform CPR. He had been told by the dispatcher that he needed to compress deeper but was exhausted from the hard work. He described the moment when the volunteer responders arrive at his home:

> Suddenly these competent people were standing in my living room. It was obvious to me that these volunteer responders were competent. They were in total control of the situation and which tasks had to be carried out. One of them began with the heart, with chest compressions. And the other one did something to her face. (N13, spouse)

Relatives described they had the impression volunteer responders were competent because they presented themselves and acted fast:

> The volunteer responder arrived and told me she was a volunteer responder. She was carrying a defibrillator. She immediately declared: He needs CPR right away, and he must get the shirt off! (N13, spouse)

### Strangers but helpers

Relatives were not always aware that a volunteer responder could show up. However, the arrival of just someone to help and assist was appreciated.

> One daughter, whose mother had collapsed, explained how she felt comfortable with the volunteer responders’ presence despite them being strangers:

> The volunteer responder went inside and immediately began compressions and one more arrived, and a third. They were completely in control of the situation, and I actually felt comfortable with them being there. Nineteen minutes went by before the ambulance arrived. And that’s a long time. A really long time. It was so nice the volunteer responders arrived and could take over the situation. And in that situation, you don’t consider them strangers. (N12, daughter)

Overall, relatives found volunteer responders’ actions rewarding, maybe partly because they did not expect volunteers to arrive:

> I had this feeling: wow – four complete strangers arrive on a Friday night, half past seven, to help someone they don’t even know. That’s quite fantastic. (N12, daughter)

The relatives included in this study seemed to immediately trust the volunteer responders and their intentions. A woman was with her teenage son when their husband and father collapsed. She and her son had collaborated on CPR and were exhausted at the time of the volunteer responder’s arrival:

> I didn’t know what a volunteer responder was. But someone to assist and take over, it was just what I needed, because I couldn’t handle it anymore. And neither could my son, it was tough. I remember thinking: She tells me she’s a volunteer responder, she probably knows what to do. And she told me: I know what I’m doing. (N14, spouse)

Even though volunteer responders and relatives were strangers to each other, a trust emerged between them,
maybe as a result of the context of the situation being critical and in the space between life and death. Relatives’ perception of volunteer responders as competent generated a feeling of relief from responsibility, something they needed when they were exhausted from providing CPR.

Receiving comfort and support
For all relatives participating in this study, it was their first time providing CPR on a real person. Relatives considered performing chest compressions a crucial task, yet both emotionally and physically demanding. Many relatives

Table 3  Framework of codes and themes

<table>
<thead>
<tr>
<th>Main theme</th>
<th>Codes</th>
<th>Example of quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The arrival of competent help</strong></td>
<td>Quick assessments and interventions. Someone to partake in resuscitation. Volunteer responders appear competent and skilled. Relatives’ exhaustion letting go of responsibility.</td>
<td>Suddenly these competent people were standing in my living room. It was obvious to me that these volunteer responders were competent. They were in total control of the situation and which tasks had to be carried out. One of them began with the heart, with chest compressions. And the other one did something to her face I didn’t know what a volunteer responder was. But someone to assist and take over, it was just what I needed, because I couldn’t handle it anymore. And neither could my son, it was tough. I remember thinking: She tells me she’s a volunteer responder, she probably knows what to do. And she told me: I know what I’m doing.</td>
</tr>
<tr>
<td><strong>Strangers but helpers</strong></td>
<td>Someone to help and assist. Gratefulness despite. Volunteer responders being strangers. Surprised by volunteers engagement.</td>
<td>It gave us time to breathe. And that’s more important than you could know. To let go for a moment and breathe I had this feeling: Wow – four complete strangers arrive on a Friday night, half past seven, to help someone they don’t even know. That’s quite fantastic.</td>
</tr>
<tr>
<td><strong>Receiving comfort and support</strong></td>
<td>Alleviating mental distress. Not to be alone. Volunteer responders’ concrete tasks. Care as small gestures. Disruption.</td>
<td>The volunteer responder, a young lady, she took me outside and brought me a glass of water. She talked to me. She covered my ears when the helicopter landed. It was nice. Otherwise, I would have been all by myself. Everybody was inside resuscitating my husband. I really appreciated she stayed with me. One of the volunteer responders, the one who wasn’t with the kids, she was just walking around a little. And she was asking things like ‘Are these your dads’ glasses?’ or ‘Was he off work today?’. I mean, she tried talking to us. And I answered her questions, but my mom was annoyed. At some point, my mom just told her: I know you are trying, but please leave me alone.</td>
</tr>
<tr>
<td><strong>Volunteer responders’ assessment of relatives needs</strong></td>
<td>Practical tasks. Assessing relatives’ emotional state.</td>
<td>I made sure that the wife was sent safely by car to the hospital, and that their house was locked, and they had the keys with them. Just practical stuff you easily could forget All I was thinking was ‘She needs some help’. It was important to me to talk to her and to provide some psychological first aid. I told her that her husband had gained circulation and that the emergency staff would take him to the hospital where she would be given more information.</td>
</tr>
<tr>
<td><strong>Manifestations of care</strong></td>
<td>A distraction rather than a help. Feeling inadequate in efforts. Lack of knowing how to support.</td>
<td>We were actually just standing there watching. We asked her if she would like some water or a whiskey. And then we were all laughing …I just went into panic. I kept thinking if he had something stuck in his throat. I tried to bend his neck a little to make room, and then closed his mouth and blew as hard as I could, but I didn’t sense it was working. So, I asked the other bystander to continue.</td>
</tr>
</tbody>
</table>
| **Challenges in providing care** | Informing and guiding relatives during the acute situation. Immediate attention towards relatives’ psychological status. Skills and expertise in assessing relatives’ needs. Non-healthcare educated volunteers’ lack of how-to knowledge. | We knock on the door where the family lives. A son opens the door. We tell him his father is sick and ask if his mother is home. She was in the shower he said. The other volunteer takes care of the son, while I wait for the mother to finish her shower. I tell her about her husband and that she should get dressed because there are many people outside her house. I put my arms around her shoulders and follow her out on the street I guess I have a trained eye through my work to direct my attention at the relatives (…) I know a lot about grieving processes. I don’t think she needed me to say much, rather than just to be there in the moment with her. The emergency staff had just arrived and started advanced life-support. I turned around, and suddenly saw the wife of the patient standing with their three small kids on the stairway behind us. And I was like – wow, full panic. I just turned towards her and said, ‘Calm down, the experts are here now’. I tried to calm her down by keeping a conversation going. I looked at the kids and said ’Oh, what a mess, that’s bad. But the experts are here now, the experts are here’.
felt lonely performing CPR, and some felt inadequate and doubted their efforts. While medical emergency staff were often busy providing advanced life support, they were rarely able to also assess relatives’ needs and emotional states. Volunteer responders, therefore, played an crucial role by supporting the relatives.

The husband who had witnessed his wife collapse was distressed and mentally exhausted when volunteer responders arrived:

I went to the kitchen because (crying). I was mentally collapsing. (N13, spouse)

The emergency medical staff arrived and initiated advanced resuscitation of his wife, while volunteer responders accompanied the spouse to the kitchen and offered him some water. Shortly after, resuscitation was terminated, and his wife was declared dead. He described his impression of the presence of volunteer responders:

Volunteer responders made a difference. Because I wasn’t alone. I was not alone, and it wouldn’t be a good thing to be alone in such a situation. Even though our kids arrived, I was grateful they were there. The volunteer responders’ behavior and performance, they were competent, and they knew their stuff. And at the same time, they had room for caring. (N13, spouse)

For most relatives, being alone was described as a distressing experience. Feelings of loneliness in the acute situation seemed to be reduced through volunteers’ small actions or just by their presence. Small gestures, such as offering a glass of water, corresponded to the feeling of being cared for in an unknown and overwhelming situation.

The woman whose spouse had collapsed in their summer residence described the situation while the emergency staff was treating her husband:

The volunteer responder, a young lady, she took me outside and brought me a glass of water. She talked to me. She covered my ears when the helicopter landed. It was nice. Otherwise, I would have been all by myself. Everybody was inside resuscitating my husband. I really appreciated she stayed with me. (N16, spouse)

The woman’s husband had gained return of spontaneous circulation while she was sitting outside with the volunteer responder. She described the situation:

It really meant a lot to me that the volunteer responder sat with me outside, it was actually nice someone thought about me. Otherwise, everything was about him, but someone who cared for me as well, it was comforting. (N16, spouse)

Although relatives overall considered volunteer responders helpful and supportive, one relative described she felt overcared for. Her dad had collapsed, and she was in his residence with her mother and her brothers’ two young children. Two volunteer responders had arrived, and while one of the responders looked after the kids, the other one tried to talk to the relatives:

One of the volunteer responders, the one who wasn’t with the kids, she was just walking around a little. And she was asking things like ‘Are these your dads’ glasses?’ or ‘Was he off work today?’ I mean, she tried talking to us. And I answered her questions, but my mom was annoyed. At some point, my mom just told her: I know you are trying, but please leave me alone. (N15, daughter)

In this situation, the volunteer responder became disruptive to the situation and not helpful. Similarly, not all relatives perceived care as a necessity. The woman who was with her son when their father/husband collapsed wanted everyone to focus on saving her husband’s life. She did not need the volunteers to care for her, she wanted them to resuscitate her husband. She described her thoughts:

I am deeply thankful that someone has the courage. That’s what I am thankful for. I didn’t need them to stay and talk with me. But they saved my husband’s life, no doubt about that. (N14, spouse)

As relatives’ needs in the tense and acute situations were diverse, it could be challenging for some volunteer responders to appraise relatives’ emotional states. In theme 2, we will illuminate how volunteers approached relatives during cardiac arrests and how they experienced providing care.

**Theme 2: volunteer responders’ assessment of relatives needs**

None of the relatives and volunteer responders included in our study were familiar to each other. Reaching out to comfort an unknown person requires a complex assessment of needs and the competence to sense the right time to approach or even whether to approach at all.

**Manifestations of care**

Volunteer responders’ engagement in comforting relatives was multifaceted, and not all volunteers found it easy to identify and address relatives’ needs. Volunteer responders’ provision of care for relatives varied between participants and care could be manifested in many ways. While some volunteers were very direct in their approaches, others cared for relatives by handling practical tasks:

I made sure that the wife was sent safely by car to the hospital, and that their house was locked, and they had the keys with them. Just practical stuff you easily could forget. (N9)

Some volunteers were very aware of the relatives’ emotional state. One young volunteer had just arrived at the address of the cardiac arrest. The emergency medical services had already arrived, so the volunteer immediately screened the scene for possible tasks. He described his thoughts when he approached the patient’s wife:
Challenges in providing care

Assessment of the relatives’ emotional state came spontaneously to some volunteer responders, while for others it was more challenging.

One female volunteer responder described a situation where she was willing to help but felt inadequate:

“We were walking around in the garden waiting for the ambulance staff to take the patient with them. And I remember thinking: I should go, I’m just standing here watching her cry. I was thinking of something to say to her. But it all ends up with me reaching my hand towards her, and I don’t say a single word. And she just says ‘Thank you’. I really didn’t know what to do.” (N1)

Another volunteer responder who had arrived at the same cardiac arrest event explained their lack of ability to comfort the wife:

“We were actually just standing there watching. We asked her if she would like some water or a whiskey. And then we were all laughing.” (N2)

Some volunteer responders had difficulties with being close to an unfamiliar person. Performing resuscitation requires actions at intimate distance. Yet the presence of the other person may at times be overwhelming because of the greatly stepped-up sensory inputs. Sounds, smells and the necessity to perform ventilations or compressions may force the volunteer to ignore their own personal boundaries. Thus, not all volunteers felt confident in being close to an unknown person and struggled to handle the situation.

While some volunteers had difficulties assessing the relatives’ needs, healthcare-educated volunteers described more ease with initiating emotional support for relatives. In theme 3, we will describe how it was an advantage to be healthcare educated while handling relatives’ needs during cardiac arrest.

Theme 3: the advantage of being healthcare educated

Five of the interviewed volunteer responders were healthcare educated, and they drew on their professional expertise including assessment skills, resuscitation knowledge and an overall holistic approach to care delivery.

Drawing attention to relatives’ needs

One consistent finding was that healthcare-educated volunteer responders’ attention towards relatives and their well-being was timely. One healthcare-educated volunteer responder arrived at a cardiac arrest scene where a man had collapsed in the street outside his house. While other bystanders were performing CPR, the volunteer responder, together with another volunteer responder, immediately approached the spouse to check-up on her and to ensure she knew what was happening. The volunteer responder talked about the episode:

“We knock on the door where the family lives. A son opens the door. We tell him his father is sick and ask if his mother is home. She was in the shower he said. The other volunteer takes care of the son, while I wait for the mother to finish her shower. I tell her about her husband and that she should get dressed because there are many people outside her house. I put my arms around her shoulders and follow her out on the street.” (N3)

Healthcare-educated volunteers immediately gauged relatives’ emotional state. One nurse explained how she quickly identified a relative of the cardiac arrest patient and adjusted her focus:

“I opened the defibrillator and looked up. I saw a young woman standing there. Are you the daughter, I asked her? Yes, she said. Why don’t we go outside for a while, and the emergency team will continue working.” (N8)

Caring for relatives could even be done through a phone call. Healthcare-educated volunteer responders were often focused on calming relatives by providing information about their loved ones:

“I call the spouse and tell him I’m a volunteer responder, and that I’m at their house and his wife needs first aid. I tell him the medical emergency staff is here and that we’re plenty of people at the scene, and that we’re taking good care of their child. I try to calm him and comfort him.” (N11)

Though non-health-educated volunteers perceived provision of psychological support for relatives an important task, it was somehow more challenging. One volunteer responder described:

“We were two volunteer responders standing and waiting. We talked to the spouse and his son who had an enormous dog. They had found his mother on the floor and called the emergency number 112. I could sense the dog was frightened, it was whining. The son, he cried a lot. They were standing all by themselves, and it was quite heavy. And I felt like we as volunteers had a job there. Not that we should act like psychologists or something like that. But maybe make them talk. But it’s damned tough to figure out what to do. It was a bit easier with that dog…” (N6)

The lack of ability to just be with the relatives in silence was a pattern among non-health-educated volunteers. Many needed to say something or do something to interrupt the awkward situation. One male volunteer responder was involved in a cardiac arrest where the father of three small kids had collapsed. He explained
how he was navigating between comforting the mother and calming her kids while he was stressed in the chaotic situation:

The emergency staff had just arrived and started advanced life-support. I turned around, and suddenly saw the wife of the patient standing with their three small kids on the stairway behind us. And I was like - wow, full panic. I just turned towards her and said, ‘Calm down, the experts are here now’. I tried to calm her down by keeping a conversation going. (N7)

He continued: ‘I looked at the kids and said “Oh, what a mess, that’s bad. But the experts are here now, the experts are here”’ (N7).

Being healthcare educated was an advantage for those volunteer responders who had professional experience with patients and relatives. A volunteer responder reflects on her professional identity: ‘I guess I have a trained eye through my work to direct my attention at the relatives (…) I know a lot about grieving processes. I don’t think she needed me to say much, rather than just to be there in the moment with her’ (N3).

Healthcare-educated volunteer responders felt much more experienced in navigating, assessing and meeting needs of relatives during the acute and stressed situation, while non-health care educated volunteers could misinterpret needs and signals from relatives. Healthcare-educated volunteer responders explained that they felt confident in managing people in psychological distress and that they drew on strategies adapted from their professions. Yet, when volunteer responders register as volunteers, they typically expect involvement in resuscitation rather than involvement in care and support for relatives. Nevertheless, our interviews reveal that volunteer responders, even those who are not healthcare educated, are very attentive towards relatives’ psychological needs.

**DISCUSSION**

This study investigated how volunteer responders and relatives to OHCA patients interacted with and perceived each other during resuscitation. Among relatives to OHCA patients, the main findings were their feeling of immediate relief when someone arrived to help and that volunteer responders provided valuable assistance just by providing some company. Among volunteer responders, the main finding was that it was an advantage to be healthcare educated, because this provided a better basis for assessing the situation and comforting relatives. Overall, volunteer responders were very attentive towards relatives’ needs, although some volunteer responders did find it challenging to approach relatives.

Our findings provide unique insights into the interaction between relatives and volunteer responders. Although volunteer responder programmes have been implemented with the intention to improve patient survival, the interaction between volunteer responders and relatives to patients is not necessarily uncomplicated. Relatives could perceive persons who are not part of the official emergency medical response coming into their private space as overwhelming or even offensive. Furthermore, their CPR skills may not be trusted. Our study found that relatives found volunteer responders’ contributions rewarding and were grateful for their efforts. The consensus among relatives was that of feeling immediate relief at the arrival of assistance. This relief was closely related to relatives’ perception of volunteers acting competent and skilled. Relatives expressed appreciation that ‘just someone’ arrived to assist them, even if it was a volunteer responder who showed up unexpectedly. Relatives were particularly thankful for volunteers responders who stayed with them while EMS treated their loved ones. Small tasks such as offering a glass of water or just listening were highly appreciated.

As volunteer responders were not particularly well prepared to provide care for relatives, some volunteers felt ill-equipped to provide emotional support and did not know how act or what to say. Volunteers who were not confident in how to provide care sometimes felt they had to overstep their own boundaries. The American anthropologist Edward Hall developed the theory of proxemics, which concerns how people behave together in different spaces. Normally, the personal space among strangers displays a limited range of acceptable body contact. Yet, the setting of a cardiac arrest in a private home is a tense and intimate situation, where physical space is limited. According to Hall, feeling one’s space is invaded causes emotional discomfort. Our interviews have shown that volunteers may struggle to maintain a balance between being uncomfortably close and awkwardly distant from the relative. Provision of resuscitation or care for relatives often requires exceeding one’s own limits or boundaries.

When volunteer responders receive an alarm, no information is provided on the circumstances of the OHCA, neither presence of relatives or even small children. As initiators of volunteer responder programmes, one must reflect on the moral responsibility of preparing volunteer responders for how to handle relatives to OHCA patients. In Denmark, volunteer responders are not expected to be trained in prioritising or handling psychological crisis reactions. One recent study of how Swedish volunteer responders perceived being dispatched found a need for preparatory training of volunteers engaged in resuscitation programmes. The authors suggested some action points to be included in future CPR training programmes, one of which was to prepare volunteers to handle the patients’ family and the unfamiliar environment, for example, in someone’s private home. Furthermore, a qualitative study on first responders engagement in OHCA found the interaction with family members to the OHCA patient could affect responders in their aftermath. We suggest that volunteer responder programmes could benefit from basic life support courses that include tasks beyond resuscitation, such as provision of emotional support for relatives.
Managing the emotional impact of being dispatched as a volunteer responder can be challenging. One recent study found that 1.2% of dispatched volunteer responders reported severe psychological impact. Facing relatives to OHCA patients in crisis may be emotionally demanding, which adds a further dimension to preparing volunteer responders for OHCA. The American Heart Association suggests that CPR and AED training programmes should directly address potential psychological barriers and to include a system of volunteer responder follow-up support. One key element in securing volunteers’ psychological well-being is a comprehensive education in how to handle relatives as volunteer responder. While emotional support is not a task volunteer responders are expected to handle, this study shows it is a task they end up handling, which underscores the need for preparatory courses offering training on how to provide emotional support for relatives during resuscitation. This study is based on in-depth interviews with 16 individuals. A larger sample would increase generalisability of the study’s results. Future studies focusing solely on relatives’ experiences with volunteer responders would be beneficial.

Conclusion
Relatives to patients of OHCA benefited from volunteer responders’ presence and support in an intense and critical situation. Relatives experienced the mere presence of volunteer responders as supportive and the responders made the relatives feel less alone. Healthcare-educated volunteer responders felt confident and skilled to provide care for relatives, while some non-healthcare-educated volunteer responders felt they lacked the proper training and knowledge to provide emotional support for relatives. Focusing on volunteer responders’ support for relatives during OHCA may be an important concept in prehospital resuscitation care and enhance relatives’ experience of being cared for during resuscitation. Since not all volunteer responders may be mentally prepared for, or willing to provide, emotional support, basic life support courses to build confidence and skills to provide emotional support to relatives of OHCA patients may benefit volunteer responders.

REFERENCES

Twitter Astrid Rolin Kragh @rolinkragh

Contributors ARK drafted the manuscript, conducted, coded and transcribed all interviews and contributed to the analysis. ARK is the guarantor of the study and accepts full responsibility for the conduct of the study. ARK had access to the data, and controlled the decision to publish. AJJ read interview transcripts, coded transcripts and contributed to the analytical work. JT-T contributed to the analytical work and to the drafting and design of the study. LZ and CMH contributed the interpretation of data. MCTG, LCA, FF, AKC and JK contributed with critically revision of the content. All authors have made a substantial contribution to the concept, analysis or design of the article. The manuscript version has been approved to be published by all authors.

Funding This work was supported by the Danish foundation TrygFonden, grant number: 148739 and the Danish foundation Helsefonden, grant number: 20-B-0049.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Consent obtained directly from patient(s)

Ethics approval The study was registered and approved at the Knowledge Center for Data reviews, the Capital Region of Denmark: P-2022-64. The Danish Heart-Runner Trial was assessed by the local ethics committee and waived formal consent unnecessary (Journal nr.: 17018804).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Interview transcripts are available on reasonable request by sending an email to the corresponding author.

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ORCID iDs
Astrid Rolin Kragh http://orcid.org/0000-0001-8925-3765
Anne Juul Grabmayr http://orcid.org/0000-0003-2363-3416