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EMS Perspectives on Coping with Child Death in an Out-of-Hospital Setting

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ABSTRACT

To understand the ways that EMS providers cope with pediatric death in an out-of-hospital setting, eight focus groups were conducted with 98 urban, rural, and suburban EMS providers. Sixty-eight of the participants also completed a short questionnaire about a specific event. In both the focus groups and questionnaire, participants were asked how they individually coped with the death, how they coped as a team, and what coping strategies were most and least helpful. Specific coping strategies were found to be helpful to EMS providers, and could be classified as Solve, Solace, Dismiss, and Escape based on whether they approached or avoided the problem or the emotion.

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Since the 9/11 terrorist attacks in the United States, there has been an increasing emphasis for social service agencies and health organizations to provide trauma-informed care to children and families faced with devastating situations (Ko et al., 2008). In order to be trauma-informed, a system or organization must attend not only to the needs of clients receiving services for traumatic situations, but to the needs of the staff who provide such care (e.g., Meadors, Lamson, Swanson, White, & Sira, 2009). In order to build trauma-informed supportive education and counseling for EMS providers so that they can remain healthy and able to provide excellent care to patients, there is a need for greater understanding of the variety of types of stress that they experience and how they can effectively cope with each form of stress. In particular, there presently is limited understanding of how the providers of emergency services cope with the trauma of pediatric deaths that occur outside of a hospital setting.

Fifty studies have been devoted to understanding the general stress experienced by EMS providers (e.g., Hegg-Deloye et al., 2013). Most of the studies focus on the chronic stress of the job, rather than on traumatic stress (e.g., Declercq, Meganck, Dehegher, & van Hoorde, 2011). Research has shown

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that paramedics experience acute and chronic stress that can lead to both negative physical states (elevated cortisol levels, indicators of cardiovascular disease, obesity, and sleep disturbance) and poor mental health outcomes (elevated levels of anxiety, depression, and posttraumatic stress disorder [PTSD]). Only four studies examined such important variables as the impact of stress on job satisfaction, fatigue and burnout, the role of social support on perceived stress, or interventions to overcome PTSD.

Of the studies reviewed, only one focused on how EMS providers cope with stress. The study included reactions to child deaths and found that these were perceived by EMS professionals to be among the most stressful situations encountered on the job (Mishra, Goebert, Char, Dukes, & Ahmed, 2010). Among the 101 EMS providers surveyed, 4% had clinical levels and 1% had subclinical levels of PTSD, 83% reported some PTSD symptoms, and only 12% showed no symptoms. Very few received treatment for symptoms of PTSD. The most common coping was positive reinterpretation, seeking social support, and venting of emotions. These strategies were seen as particularly helpful for those at high risk of experiencing PTSD.

A recent large-scale Internet study of 1,633 EMS personnel across the nation was conducted to better understand the ability of EMS providers to recognize their own level of stress-related impairment (Donnelly, 2012). The study found that a level of operational and organizational stress, critical incident stress (e.g., death of a patient), and alcohol use all predicted posttraumatic stress symptoms of intrusive thoughts, hypervigilance, and over-arousal. The interaction between chronic stress and critical incidents was particularly predictive of the severity of symptomology. Thus, interventions need to address not only critical incidents, but how those impact staff in the context of the daily stress of executing job tasks.

A study on resilience factors among paramedics sought to understand why most paramedics do not develop clinical levels of PTSD and what factors might be most predictive of positive outcomes (Streb, Haller, & Michael, 2013). The authors found that a person having a high global sense of coherence or coping self-efficacy described feelings of confidence to be able to cope with stressful challenges in life. Also valuable in lowering a person's risk for developing PTSD was professional preparation for dealing with traumatic events through multiple trainings and availability of psychological help in the form of debriefings, counseling or Employee Assistance Programs (EAP). Both preparation and help contributed to coping self-efficacy. Another study of paramedics' coping with critical incidents examined the impact of identifying, describing, and expressing emotions on their recovery from acute stress and psychological symptoms (Halpern, Maunder, Schwartz, & Gurevich, 2012). The study found that the inability to identify emotions was associated with prolonged physical arousal 24 hours after a critical incident and with a range of negative psychological symptoms. Individuals who

had low levels of emotional expression also rated their contact with friends, family, and helping professionals as less helpful in lowering their arousal after a critical incident than those who had more emotional expression.

Thus, there is limited research on how EMS providers can and should cope with traumatic events encountered in the field. Early clues point to the value of coping self-efficacy, cognitive reframing, receiving social support from both close associates and professionals, as well as identifying and expressing emotions associated with witnessing traumatic events. However, each of these studies measured one or two coping variables per study. No one study has measured all of the known behaviors that reduce negative outcomes like PTSD (see Murphy, Johnson, Chung, & Beaton, 2003) and *none have focused exclusively on coping with the death of a child*. So, while these studies give some clues regarding coping with an array of traumatic events encountered by EMS professionals, no studies have examined all of the ways that EMS professionals cope with a pediatric death in an out of hospital setting. Thus, the purpose of the current study was to catalogue all of the ways EMS professionals cope with the critical incident stressor of pediatric death in the field and to use the information in development of a digital application and other training materials. Because this is the first study to exclusively examine coping with pediatric death, a qualitative approach was utilized. Patton (2014) notes that a qualitative approach is particularly useful in understanding previously unstudied phenomena.

This study is part of a larger investigation focused on how EMS professionals help family members cope with the crisis intervention and ultimate death of a child. The present article focuses on questions centered on coping with these stressful situations. The ultimate goal of this line of inquiry is to help organizations that support EMS providers to be more trauma-informed so that patients and families are better served, EMS providers remain healthy, and the resiliency and retention of staff is enhanced. Use of a qualitative methodology allowed this team to unearth the possible ways that EMS providers can and do cope with a child death so that we could then tie such grounded findings in the larger literature on coping with trauma. The fact that the key coping behaviors come from the experience of EMS professionals will lend credibility to the suggestions that will be incorporated into the various trainings and interventions developed.

Method

Recruitment of EMS providers for study groups

EMS providers were recruited from the Commonwealth of Kentucky. Leaders across the state received a letter from the Kentucky Board of EMS (KBEMS) executive director and the Emergency Medical Services for Children (EMSC) program director and manager, explaining the purpose of the study, giving

the purpose and details of focus groups (FG), and introducing the investigative team. Kentucky EMS personnel have been certified at the First Responder, Emergency Medical Technician (EMT), and EMT-Paramedic levels. As of July 27, 2012, there were approximately 13,000 EMS professionals working in the state. FG participant recruitment was achieved by obtaining a list from the Kentucky EMS Director and EMSC Coordinator that included location and contact information. Approximately 300 EMS staff from across the state received a request to participate in a focus group. Potential participation dates and times, stratified by location, were offered. The letter provided contact information for the FG coordinator, and interested personnel were encouraged to participate. A maximum of two follow-up letters were sent to enable sufficient enrollment of subjects (Dillman, 1978).

It is important to remember that selecting participants in a qualitative focus group design involves minimizing sample bias rather than achieving generalizability, for no group of 40 to 60 people can ever be representative of a population or subgroup. In addition, while most focus group studies include a range of 3–5 groups with an average of 8 participants each for a total N of 40 (Morgan, 1997), because we wanted to engage EMS providers working in urban, rural, and suburban settings in different parts of the state that differ demographically (for example, Louisville has the most African Americans in the state, whereas several counties in central and Western Kentucky have a high number of Latinos, and Appalachia is culturally different from other rural areas in the state)—all of these being settings that could influence perspectives on coping—we intended to run 8–10 focus groups with up to 12 participants per group. In order to enroll a minimum of 96 participants in 8 groups, focus group methodology recommends engaging 20–25% more potential participants (Morgan, 1997). Approximately 125 EMTs (23% more than were necessary) indicated an interest in participating in a focus group, including those at the state-level conference. Once locations in each quadrant of the state had determined which would accommodate most of those who indicated an interest, 98 EMS providers ended up participating in 8 focus groups.

Kentucky is a primarily rural state located in the East Central United States with both Southern and Midwestern roots. The 2010 U.S. Census reports that Kentucky has a population of 4.3 million, including 8.0% Black, 3.2% Hispanic, 1.2% Asian, and 3.1% foreign-born members. Median household income in 2006–2010 was \$41,576 (compared to \$51,914 in the United States as a whole) with 17.7% (U.S. 13.8%) living below the poverty line. Children less than 5 years of age account for 6.4% (U.S. 6.5%) of the population, with the total number of children less than 18 accounting for 23.4% (U.S. 23.7%) of the population. Fifty-four of Kentucky's 120 counties are classified as in Appalachia, which is underserved due to geographic isolation, plus financial, cultural, and workforce barriers that limit access to resources. The three

biggest urban areas that make up almost half of the state's population include Louisville, with approximately 1.3 million people in the greater Louisville area, Kenton, Campbell, and Boone counties of the Northern Kentucky region with 375,000 residents, and Lexington with 300,000 residents.

Focus groups

Four study authors conducted eight regional focus groups of EMS providers in six different urban and rural cities in Northern, Eastern, Central, and Western Kentucky (Louisville, Lexington, Madisonville, Elizabethtown, Pleasure Ridge Parkway, and Florence) between November 2013 and March 2014. All were experts in conducting focus groups and were trained in the particular focus group protocol utilized for this study (Morgan, 1997). Most focus groups included between 5 and 11 participants. One group had 26 participants who were available while attending a statewide EMS conference.¹ After the first focus group, the team decided to give all focus group participants a short questionnaire at the beginning of the session in order to help them independently remember an incident when a child died in an OOH setting, and to gather key demographics more easily. For seven of the focus groups, participants signed in, received study instructions and signed the consent form, completed the short questionnaire, and then participated in an hour and a half focus group. The entire exercise generally took 2 hours. For the first focus group, all of the same steps were followed but the questionnaire was not included. All participants received resources to assist them in self-care activities to alleviate job stress at the end of the session. Opt-out options were also offered but were never acted upon.

Focus group participant demographics

Ninety-eight EMS providers from urban (33%), suburban (17%), rural (34%), and mixed (17%) settings across the state of Kentucky participated in the FGs. Most ($N = 68$) of those participants also completed the questionnaire (12 were in the first FG that did not receive a survey, 6 had never experienced a pediatric death, and another 12 read through the questionnaire to prompt memories that helped them share during the focus groups, but did not write down answers to the questions). All provided information about their (a) years of experience in EMS (ranging from less than 1 year to 39 years, with a median of 15 years), (b) type of training (52% paramedics, 27% EMT, 17% firefighting, 4% nurse or police), (c) type of position held (25% administrative, 10% supervisory, 59% frontline, 6% special position), and (d)

¹The one large focus group, while outside the norm in terms of numbers usually included in a focus group methodology, was actually quite interactive and generated a rich set of answers to the questionnaire and focus group questions. However, the answers were in line with responses from other groups.

exposure to dying children in OOH settings. It is noteworthy that 93% of study participants had been exposed to one or more pediatric deaths. The members of the focus groups were quite eager to share their past experiences regarding OOH pediatric deaths. They were pleased that others might be able to benefit from their experience and insights. In addition, 78% of the participants were male, 85% were Caucasian, 6% were African American and 8% were Hispanic.

Measure

A written interview guide developed by the research team in order to answer the specific questions regarding how EMS providers coped with a pediatric death was utilized to minimize deviation across groups. Facilitators ensured that all group members participated. At the conclusion of the first FG, participants were asked for feedback on the clarity of the questions and asked for suggestions about what else should have been included. Slight changes to questions to enhance clarity were made based on this feedback, but no substantial changes to the questions occurred, and thus the answers generated by the first FG are included in the results. Questions included: (a) Describe the most memorable pediatric arrest scenario you participated in as a direct provider. (b) If you could replay the scene, how would you change what you did, if anything? (c) How did you and your team cope after the run was complete? What did you do to care for yourself after the experience of the pediatric arrest? (d) What do you find helps in coping with this type of situation? (e) If there were training on managing family grief and coping with pediatric death, what should be included in the training? (f) If there were a tool focused on managing a pediatric death situation, with a focus on managing the family and coping with the event, what should be included? How could such a tool be utilized?

Method for analysis of qualitative data

Initially, qualitative data extracted from the 68 questionnaires for each question were grouped into themes (Patton, 2014). The first coder combined answers to each question from across all of the written questionnaires. Then, similar sentiments were grouped. Sentiments that had high overlap were combined. Next, each grouping was given a name that characterized the theme present in the answer. A summary of findings across all themes for each question was written. Answers to each question were then combined from across all of the focus group transcripts and audiotapes. As with the questionnaire data, similar sentiments that surfaced during focus group discussions were grouped and sentiments that had high overlap were combined. Then, each grouping was given a name that characterized the theme present in the

answer. Answers from the questionnaire and focus group methods were compared. Extracted themes for each question were essentially the same when comparing those from the questionnaire and the focus group data. Thus, themes and answers for each question from the questionnaires and focus groups were combined. In the few cases where additional themes were present in either the questionnaire or FG data, all themes were retained in the final set, since the purpose of the study was to generate as many different ways of coping as possible.

In qualitative research, a coder knows that saturation is reached when at a certain point in the coding of participant responses, all responses fit into the themes that were established in the first few sets of answers and no new themes emerge (Morgan, 1997, Patton, 2014). This saturation was reached by the fourth set of questionnaires and fifth set of focus group answers. All answers from the fifth through seventh set of questionnaires to the sixth through eighth focus group fit into the themes generated from the first four questionnaire and fifth focus group sets of answers. If new themes had emerged through the eighth focus group, more focus groups would have been conducted, but that was not the case and so the study was concluded.

In the coding phase, a grounded theory approach was utilized to allow themes to emerge rather than dictating ways of coping based on the extensive literature in this area (e.g., Penley, Tomaka, & Wiebe, 2002). However, ultimately the coders relied on the coping and interactive coping literatures to sort the final themes into categories. Thus, the results of this study can be tied to the larger literature that is based on those experiencing trauma (Littleton, Horsley, John, & Nelson, 2007). For interrater reliability, a second coder examined 10% of the questionnaire responses and focus group sentiments to verify groupings and theme extraction. Then, the second coder examined the final themes for each question and the list of suggestions to verify groupings and names of themes. Cohen's kappa was .93, which showed high interrater reliability. Results were shared with other members of the team, who had observed many of the focus groups for further confirmation of the face validity of coding and themes.

Data safety and monitoring plan for human subjects

All activities concerning human participants were approved by the University of Louisville IRB in August 2013 and from Norton Hospital in September 2013. All participants gave informed consent.

Results

The EMS workers relayed many stories of pediatric death in the field in order to give context to their other answers. Sad and sometimes horrible deaths

were described, including arriving on the scene to find brain-damaged infants after shaking or blunt force trauma. Another example was when an EMS team arrived at the scene of an accident. A little girl died after being hit by a van on her way to the ice cream truck. The girl was the same age as the EMS provider's daughter. He was so shaken, he cried outside of the ER. One EMS provider had served as the coroner in his town. After a SIDS death, he allowed the family to hold the baby for 2 hours before he took the child away. He only had a van, so he retrieved a car-seat to put the baby in to take her to the morgue. The family saw him put the car seat in backwards, strap the child in appropriately, and tuck a blanket under her head so it would not droop. He treated the baby like she was his own. Such incidents were etched into the minds of the EMS providers.

Six themes emerged when analyzing the responses to the questions, "How did you and your team cope after the run was complete? What did you do to care for yourself after the experience of the pediatric arrest?" Some EMS providers expressed the theme of *Soldiering On*. They indicated that they had no time or resources available to help them cope or to engage in self-care activities. Providers said things like: (a) "Nothing, I shut down. Work expected me to stay and continue my shift. There was no time to tend to myself." (b) "Poorly, we were not functional for the remainder of that shift; I kept the experience inside and did not talk about it." (c) "We never talked about it. We went on our next run and never spoke to each other of it again. I have not spoken of its effect on me to this day." (d) "I made myself stay at work for fear that if I went home I may not return, ever."

A second theme was *Peer Support*, which involved the giving and receiving of social support within the EMS team. This involved a focus on managing emotions: (a) "My partner and I talked it out; I personally talk to my partner to make sure he or she is okay." (b) "My partner and I talked about the run. It is important to reassure each other that all efforts were made and we cannot blame ourselves for a death. We sympathize with the patient and acknowledge the tragic loss. But it is important not to attach yourself too emotionally to a patient." (c) "We did what we always did—talked it out among ourselves and our trusted peers to learn and to decompress." Peer Support also focused on problem-solving: (d) "Discussed and critiqued with crew; went to the back of the ambulance and talked about how the code went from beginning to end; discussed what we could have maybe done differently and cried."

A third theme involved *Seeking or Referring for Professional Help*, wherein some providers talked about discussing the pediatric death run with a chaplain or mental health provider: (a) "The Chaplain came to the firehouse before we left to go home to offer assistance." (b) "I talked to a psychiatrist who is a family friend." (c) "Counseling was available but not mandatory." Similarly, some administrators and supervisors were actively involved in ensuring that the EMS team was coping with the incident. One leader said, "I try to speak

personally with my crew and monitor my crew's mannerisms to ensure they are okay—if not, I refer them to the EAP or the Chaplain or other help.”

The examples seemed to focus on going to a professional to engage in more emotion-focused coping, but a therapist can also help people analyze the situation and find ways to cope with future incidents, which is a more problem-focused approach. The type of help gained from professionals depends both on the professionals' orientation and the type of help that is sought by the client.

The *Critical Incident Stress Debrief (CISD) process* was standard in some localities. A CISD is usually conducted 2–10 days posttrauma and occurs in seven phases. For secondary traumatic events, professionals gather into a cross-disciplinary group (e.g., police, firefighters, EMS personnel) to talk about who they are and the details of the event. Everyone is asked to participate and listen carefully. They are asked, “What was the worst part of the incident?” The trained facilitator normalizes stress reactions and summarizes what occurred, answers questions, and assesses whether anyone needs follow-up care. The literature notes that, while the majority of debriefed professionals describe the experience as helpful, there is no compelling evidence that debriefing reduces the incidence of PTSD. In fact, some RCTs suggest that this process may impede natural recovery from trauma (McNally, Bryant, & Ehlers, 2003).

Some EMS workers talked about it: (a) CISD was provided within 24 hours with EAP follow up; (b) CISD available to all responding crew; (c) formal debriefing with fire, police, and EMS. CISD is a mixed approach that both has people express emotions and give one another social support (emotion-focused coping) as well as analyze the situation for future improvement (problem-focused coping).

In a fifth approach, EMS providers indicated that they engaged in *Social Support Seeking outside of the team*, which could involve seeking comfort from family or friends: (a) “I talked about the event with my spouse,” and (b) “I hugged my kids a little tighter that night.”

Finally, some EMS workers reported *Personal Forms of Coping*, mentioning more solitary activities to manage their emotions, such as spending time in prayer and reflection, or playing violent video games.

Focusing further on personal coping, five themes emerged in the responses to the question, “What do you find helps in coping with this type of situation?” Some EMS providers endorsed *Passive Avoidant Coping* such as (a) keeping calm during the situation and maintaining a professional position, (b) not dwelling on the event, (c) taking time off and getting away from work, (d) burying the pain, (e) waiting for the passage of time, and (f) ingesting substances, for example, “I try to become numb to the experiences by drinking with my buddies.”

A number of EMS workers reported *Active Avoidant Coping* such as (a) reading, (b) focusing more on their own children, (c) staying busy, (d) being

physically active by running and weight lifting, and (e) shooting guns at the range to relieve stress. Most EMS providers, however, discussed engaging in *Reflective Acceptance Strategies*. The range of active coping activities mentioned across the 98 providers was very broad and included a variety of meaning-making: (a) crying and deciding to let it go; (b) engaging in quiet reflection; (c) trying to get perspective by thinking of the big picture and putting the incident into context; (d) finding meaning in life, for example, “You have to value every moment”; (e) finding meaning in the work, for example, “Knowing that I made a difference or made the right decisions,” or, “The child’s death was easier to cope with given the situation of child abuse. I felt better for the dead child than the two left alive.”

Several mentioned *Self-Affirmation*, including positively evaluating their own performance while thinking of ways to improve: (a) “I review the situation and see how it could have been done differently to assure myself I did everything possible.” (b) “It helped me to be in the ER to see the family and help them cope and speak to the MDs about possible causes, which helps improve my practice.” (c) “Seeing that I have a job to do, and if I didn’t, who would?” (d) “Recognizing that you won’t be able to save them all.”

In responding to the question, “What do you find helps in coping with this type of situation?”, many EMS workers reiterated the prior themes of the value of *Seeking Social Support* from colleagues, friends, and family, or seeking formal help from clergy or mental health professionals. Many talked about the importance of talking with the crew, one’s supervisor, and other colleagues about the event. Some mentioned talking to spouses. Across the state, sites also routinely utilized CISD after very traumatic runs.

The question was asked, “If there were training on managing family grief and coping with pediatric death, what should be included in the training?” Some of the answers focused on how specific operational aspects of the system could be tweaked, but six themes emerged that focused more on what individuals could take away from such a training. Often, the EMS workers expressed the desire to learn more about the techniques that worked for their peers, most of which were mentioned above.

One theme to be included in training was to introduce EMS providers to various ways of actively coping with the stress of an out-of-hospital pediatric death. They wanted to know more about how to develop *Reflective Acceptance Strategies*, including helpful cognitive skills such as how to convince oneself that one did all one could, even in a futile situation, and how to find meaning in the job.

Participants also expressed a desire for *Self-Affirmation Strategies*: they wanted to know how to structure debriefing sessions for purposes of both continuous quality improvement as well as coping through discussion of what happened, and how they could do better in the future. Some mentioned wanting to create self-help groups of other first responders with whom to discuss

these issues, and wanting to learn the *Specific CISM Protocol* (initiating one, approaching it properly, engaging folks in positive participation, allowing venting without spiraling into negativity, and how to exude professional body language and engage in personal conversations that are helpful to others while working a “code”).

EMS workers want these types of discussions to allow people to get their emotions out and to discourage isolation or use of too much alcohol and drugs as a way to cope. Consistent with the latter, EMS workers expressed a desire to learn about other *Self-Care Strategies* such as exercise, experiencing nature, and how to meditate to calm the body and mind.

Two new themes also emerged in response to this question. They wanted to know how to recognize and intervene to *Prevent Burnout or Secondary Traumatic Stress* (STS) from emerging in colleagues, as well as signs of suicidality. For interventions, they wanted to make sure their coworkers and staff get the help they need in a safe way (e.g., finessed so that people’s jobs are not in jeopardy).

Finally, EMS workers wanted skills for how to *Interact More Effectively* with angry family members to diffuse the situation, how not to take offense at such expressions of anger, and how to “adjust and let go of” such a volatile situation afterwards.

For the final questions (“If there were a tool focused on managing a pediatric death situation, with a focus on managing the family and coping with the event, what should be included? How could such a tool be utilized?”), many of the answers shared above were suggested under the following categories: (a) *Preventing Burnout and STS* with an emphasis on recognizing symptoms in colleagues, (b) how to better give and receive *Peer Support* and form support groups as necessary, (c) how to tap into *CISM* resources or conduct those in their county so as to debrief, analyze, and plan for future improvements, (d) how to engage in *Self-Care Strategies*, *Reflective Acceptance Strategies*, *Self-Affirmation Strategies* (e.g., journaling thoughts about such events to find meaning and purpose, and to highlight times lives have been saved), and (e) how to engage in less harmful forms of *Avoidant Coping* such as keeping calm, not ruminating, taking vacation days, reading, and being physically active (e.g., forming a sports league to encourage exercise, learning breathing exercises to relieve stress) while avoiding excessive use of substances, food, or risky behaviors like driving fast, gambling, and engaging in risky sexual encounters.

Respondents thought that a digital application could be used after a run while the event was still fresh in their minds as well as in preparation for any future run that occurs involving a child. They also thought that, during down time, EMS providers could utilize the app and any online training modules on coping with out-of-hospital pediatric death as part of their professional development.

Discussion

Focus Group data are collected in and influenced by the social milieu of peers, the same peers that may influence behavior in the field and the attitudes the investigators seek to understand. While FGs cannot document the precise proportion of attitudes in a population, they can create a portrait of the range of opinions and concerns; this is achieved by conducting FGs until there is saturation of themes, indicating that the range (but not distribution) of opinions and concerns has been captured. FG methodology attempts to elicit as many points of view as possible, ensuring that the programs developed on the basis of these data will meet the needs of a diverse population. This methodology helped our research team gain essential insights into how EMS providers can improve coping with pediatric death.

Some EMS providers recognized that their workplace did not encourage talking or debriefing. Those individuals also tended to endorse passive avoidant forms of coping like avoiding the topic, keeping feelings inside, allowing time to heal, or trying to numb themselves through use of alcohol or drugs. Workplaces that expected staff to soldier on and largely rely on passive avoidant strategies were more common in the past than in the present. Most contemporary agencies encourage staff to talk to their partner, other crew members, and members on the run from all disciplines, either informally as a part of the social support process or formally through a CISD. These discussions often involve an analysis of what was done well, what could have been done differently or better, and exploration of feelings.

Sometimes, social support was given and involved crying, hugging, and checking in to make sure everyone on the team was okay. Several administrators reported that they checked in on individual staff members and watched them for signs of stress or trauma. They often refer staff to the EAP or bring in the CISD team to help the team or individuals recover.

EMS providers expressed a strong desire for more training on a variety of positive coping strategies. The results validate previous research on EMS coping noted in the introduction (e.g., Streb et al., 2013). EMS providers in this study endorsed cognitive reframing, receiving social support from both close associates and professionals, as well as identifying and expressing emotions associated with witnessing traumatic events. The results go beyond the existing literature by adding additional strategies that have been used in coping with pediatric death in an out-of-hospital setting. These coping strategies include helping the family cope with the incident, participating in CISDs, engaging in self-affirmation, preventing burnout and STS in colleagues, and utilizing reflective acceptance strategies. EMS providers also emphasized the more active forms of avoidant coping, such as exercising and resisting rumination, as well as taking some time off to recuperate.

Examining the themes that arose in light of dominant coping and interpersonal coping theories, the themes found in the focus group data can be

subsumed under a coping typology that integrates these two major theories (Cunningham & Barbee, 2000). This typology suggested that in coping with stress, individuals either focus on the problem or focus on their emotion (Folkman & Lazarus, 1985), and either actively approach or endeavor to avoid the problem or emotion (Roth & Cohen, 1986). The resulting typology includes (a) *Solve* behaviors, which are problem-focused approach behaviors designed to find an answer to the problem, such as seeking informational and tangible support, asking questions to better understand what happened, and deciding how to solve the underlying problem or change a situation, and (b) *Solace* behaviors, which are emotion-focused approach behaviors designed to lead to positive emotions through closeness with another, such as seeking validation or hugs. By contrast, (c) *Dismiss* behaviors are problem-focused avoidance behaviors to such as minimizing the seriousness of the event or avoiding thought about a traumatic scene. Finally, (d) *Escape* behaviors are emotion-focused avoidance behaviors that suppress the experience or display of negative emotions, such as by consuming alcohol or exercising to change emotions (see Littleton et al., 2007 for a similar typology with different quadrant labels).

Research has found that each form of coping had some benefits for some people facing certain types of issues, but *Solve* and *Solace* tended to offer more positive long-term outcomes than *Dismiss* or *Escape* (e.g., Derlega, Winstead, Oldfield, & Barbee, 2003). Interestingly, the coping behaviors that emerged in this study can all be classified within the *Solve/Solace/Dismiss/Escape* quadrants (see Figure 1), with one caveat. An individual's goal for engaging in a given coping behavior determines whether it is a *Solve* or a *Solace*. For example, *Solve* behavior is exhibited by the EMS worker who participates in CISM, and seeks professional support or peer support for help with the problem, such as whether there was something else that they could have done on a run involving a fatality. *Solace* behavior is exhibited by participating in CISM, and seeking professional support or peer support for help in managing their emotional state. The questions that the worker raises, and the responses from others that are most effective, would differ in the two cases.

The findings in this study enhance the existing coping literature with a focus on EMS providers coping with a pediatric death. However, in creating the digital application and other training materials, a combination of insights from the focus group data, as well as results from the coping literature (e.g., Penley et al., 2002) will inform those training materials. In addition, for modules aimed at administrators and supervisors of EMS teams, we intend to draw on the extensive literature on behaviors exhibited by healthy leaders of first responders (in terms of attachment style and forms of support giving) that lead to positive emotional outcomes for staff. Finally, we will integrate the findings from the growing literature on burnout and secondary traumatic stress (Shoji et al., 2014), which ties the whole topic back to helping organizations become more trauma-informed. All of this information will be translated into standard

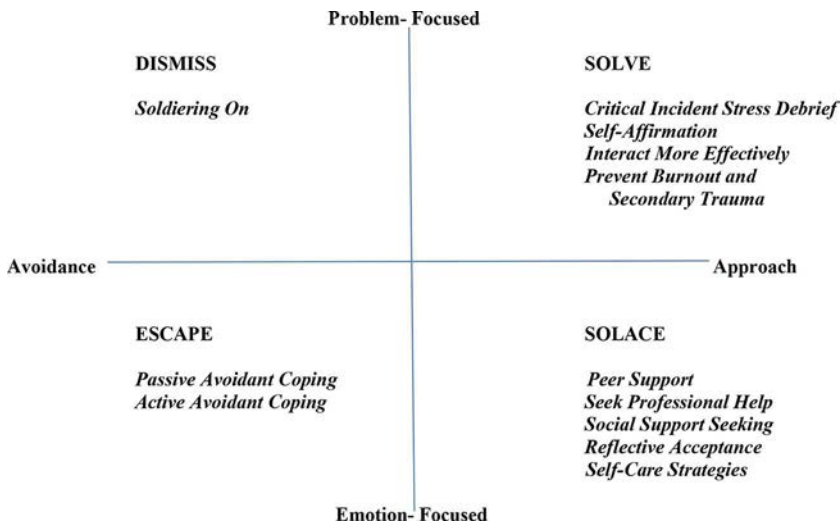


Figure 1. Coping typology.

training materials for EMS providers as well as into the digital app and standardized patient training modules as a part of this grant.

The limitations of this study are that it was conducted in only one state. While this sample was not representative of EMS providers in different parts of the country, it did reach a diverse set of EMS providers with varying types of training, serving in all types of settings (e.g., urban, rural), for varying numbers of years, with varying backgrounds (e.g., gender, racial). However, a nationwide survey study with a representative sample of EMS providers is needed to validate and expand upon these findings. In addition, future research can evaluate the impact of proposed training and tools, including the simulation modules and apps on staff learning, transfer of learning into the field, enhanced coping abilities, the seeking and giving of social support, and staff performance and retention.

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