

Norwegian Firefighters' Experiences of Rescue Work at Severe Traffic Accidents- A Qualitative Study

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ABSTRACT:

Research on firefighters' health consistently report higher prevalence of mental disorders compared with the general population. Yet, little is known about how firefighters themselves experience their work. The aim of this study was to explore firefighter's experience of rescue work at severe traffic accidents. Eleven male firefighters were interviewed with qualitative semi structured interviews. Through reflexive thematic analysis of the transcripts five themes were identified: 1) The mobilizing effect of the alarm – fighting against time; 2) The group unity in the fire truck - coordinating focus, preparing the team; 3) Rescue work – I do what I must, but protect myself from the visual impressions; 4) When the situation calms down – the need to talk about it; 5) The long-term effects of rescue work - it affects you. The findings point to how the stress response represents both a resource and vulnerability when having to relate to extreme situations regularly, as part of your job. The participants shared that experience had taught them to use the mobilizing effect of the rescue alarm as a support to handle aversive impressions at an emergency, together with coping strategies such as task orientated focus and group unity. In the time after rescue work, the participants reported a need to process their experience as a group. High frequency and severity of accidents was reported to potentially interfere with processing of their experiences, and participants expressed how burnout was lurking, without any of them knowing when or where their capacity would be exceeded.

KEYWORDS: Firefighters, Traffic Accidents, Burnout, Coping

INTRODUCTION

Firefighters are often perceived as strong, fearless heroes who rescue people. However, repeated exposure to severe traffic accidents seems to have a cumulative negative effect on emergency personnel (Harvey, et al. 2016; Heinrichs, et al. 2005; Norris, 1992). An increasing amount of evidence points to the fact that firefighters have a higher prevalence of mental disorders compared with the normal population (Corneil, et al. 1999; Heinrichs, et al. 2005; Katsavouni, et al. 2016). Yet less is known about how rescue work is experienced and what can be done to support resilience from a firefighter's perspective. This article contributes to

this direction by reporting from a qualitative interview study exploring firefighters' experiences of rescue work at severe traffic accidents.

A severe traffic accident is typically defined by serious but not necessarily life-threatening injuries (Norwegian State Highways Authority, 2019). Despite the number of traffic accidents having declined in Norway over the past decades (Norwegian Central Bureau of Statistics, 2018), they continue to be one of the most frequent callouts (DSB, 2002). For firefighters a callout to a severe traffic accident is likely to activate a stress response because the event comes unannounced with an unknown extent of damage.

According to Porges polyvagal theory, a healthy balance between the stress response and the regulatory system is reflected in the tolerance window as the optimal activation zone, maintaining normal cognitive capacity and abilities for social interaction (Porges & Dana, 2018). Disturbing stress is said to cause either hyperactivation leading to irrational actions or hypoactivation causing a form of paralysis. Frequent or strong activation of the stress response can

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potentially increase the sensitivity of the brain's alarm system and impair the neural connections to the regulatory system, leading to a narrower tolerance window (Nordanger & Braarud, 2017). A sensitized alarm system with an impaired regulation system can explain why some people, in the time following potentially traumatic events, experience intrusive memories, develop avoidant behaviour, are tense, restless, and may have difficulties with their focus and concentration (hyperactivation symptoms). In some cases, the activation can be opposite and be experienced as reduced vigour or passiveness (hypoactivation symptoms). Normally the regulation system will normalize itself, especially with social support, leading to symptom reduction (Nordanger & Braarud, 2017; Porges & Dana, 2018). In cases where symptoms become more chronic it is classified as PTSD (World Health Organization, 1992).

For firefighters, symptoms of PTSD have been shown to be correlated with years of service, number of accidents attended, recent events, frequency of events, and perceived threat under rescue work (Pinto, et al. 2015; Sattler, et al. 2014). Despite firefighters being a heterogeneous group, there is little doubt that the occupation comes with a high risk of work-related stress. Recent studies on PTSD in firefighters show a prevalence of 22%, 17%, and 18% respectively in American, Canadian, and German samples (Cornell, et al. 1999; Heinrichs, et al. 2005). Harvey et al. 2016 found a linear relationship between exposure to fatal accidents and symptoms of mental disorders for firefighters. Increased risk for work related mental health problems was also found by Katsavouni et al. (2016) who found accidents involving children to be potentially most traumatic, followed by car, bus and train accidents involving multiple injured people and intrusive spectators. Another challenge firefighters must handle at work, is the control of their own feelings in accordance with situational demands, often defined as emotional labour. This is associated with higher levels of occupational stress, exhaustion, alienation, and symptoms of PTSD (Bakker & Heuven, 2006; Mann & Cowburn, 2005; Oh, et al. 2017; Park, et al. 2018). Emotional avoidance and avoidance coping strategies are also found to account for most of the explained variance in firefighters' psychological distress (Brown, et al. 2002). Armstrong et al. (2014) point to the importance of organizational factors for firefighter's psychological wellbeing. They found that firefighters who are either unhappy with their superiors, dissatisfied with available equipment, experience lack of care or other work-related frustrations have increased vulnerability to PTSD symptoms.

The existence of risk factors is indisputable, at the same time there is emerging evidence regarding the facilitation of resilience. A Danish longitudinal study has shown lower premature mortality among firefighters compared with samples of the working population and military employees with equivalent workload (Petersen, et al. 2018). In addition to physical training and regular fitness tests Petersen et

al. (2018) argue that resilience can come from continuous critical incident training and the focus of social unity between firefighters. Other studies have found that firefighters who experience social support from colleagues or their superior, those who have high locus of control, who participate in debriefs after critical incidents, as well as those with longer work experience and training are reported to have higher resilience against negative symptoms after exposure to critical events (Bernabe & Botia, 2016; Isaac & Buchanan, 2021; Onyedire, et al. 2017; Sattler, et al. 2014). A high score of emotional intelligence is also shown to predict lower levels of self-reported stress after potential traumatic events for firefighters (Wagner & Martin, 2012). Despite having some knowledge about resilience and risk factors on a group level, the increased risk of mental health challenges among firefighters point to the importance of knowing more about how firefighters experience rescue work to facilitate resilience and reduce the negative impact of the work on the firefighters do.

METHOD

DESIGN: This qualitative study used semi-structured interviews, inspired by a hermeneutic-phenomenological approach, with an intention to understand how firefighters themselves experience rescue work at severe traffic accidents. A study of lived experience to a professional group as firefighters, can lead to a tension between addressing the inner world of a specific person, and the intent to accumulate abstract data from several informants to understand a phenomenon and make general statements. According to Laverly (2003) the ontological and epistemological framework of hermeneutic-phenomenology is useful in meeting this tension. The aim is to achieve a creative dialectic between phenomenological exploration on the one hand, and hermeneutic interpretation and reflexivity on the other (Binder, et al. 2012; Laverly, 2003). The approach acknowledges the way data is co-created between the interviewer and the informant, with awareness that the interviewer inevitably will influence what the interviewees share, as well as the researcher who interprets the data is included in an intersubjective process (Binder, et al. 2012; Braun, et al. 2019; Braun, et al. 2019b). Hermeneutic-phenomenology is suitable for going in depth on specific experiences, with a potential for discovering new and unexpected phenomena because one does not have to adapt the approach to already existing phenomena and theories (Laverly, 2003).

STUDY SETTING: The study was conducted in the Norwegian district which has the highest prevalence of traffic accidents and the weakest reduction in fatal traffic accidents over the past 30 years (Norwegian Central Bureau of Statistics, 2018). In Norway it is the Directorate for Civil Protection and Emergency Planning (DSB) who write the requirements for Norwegian firefighters. Despite known

risk factors, there are no guidelines outlining how to support firefighters with their mental health (DSB, 2002). The care of firefighters is assigned to each municipality, regulated by the Working Environment Act and the Internal Control Regulations (Ministry of Labor and Social Affairs, 1996, 2005). The only guidelines available, focuses on the general population and provides no guidance for Emergency personnel.

Inspired by military and surgical teams, some fire brigades have introduced debriefing as a psychosocial measure after critical or fatal accidents. A debrief is a term used for the conversation Emergency personnel have after an event. The conversation is intended to provide a space to talk about positive and negative experiences, as part of the processing (Gardner, 2013). In the absence of official regulations, it is up to each fire brigade to decide if, when, and how a debrief is conducted.

The recent years' focus on firefighters' mental health has led some fire brigades to develop organized peer support, as a low-level support. The purpose is to provide a confidential conversation with an experienced colleague who has received training in providing social support. Peer support has existed in the Norwegian police since 1995, yet only a few fire brigades offer this form of support today (Brannmannen, 2011; Dyregrov & Dyregrov, 2008).

PARTICIPANTS AND DATA COLLECTION

PROCEDURE: Using purposeful sampling, the participants were recruited from a specific Norwegian fire district because of the high frequency of serious traffic accidents in this area. The inclusion criteria required experience with serious traffic accidents. In collaboration with the fire chief and the safety representative eleven firefighters with more than 15 years of experience were informed about the study, and all volunteered for participation.

The eleven participants were all men, aged 40-55 years, on duty every fourth week, in which they are available 24/7 all week. Like two thirds of the Norwegian fire brigade most of the firefighters in this sample worked part-time and travelled from the main employer to the fire station in the event of a callout. Interviews were carried out at the fire station by the first author and lasted on average one hour. Interviews were audio recorded and transcribed verbatim by the first author.

DATA ANALYSIS: The interview transcripts were analysed using reflexive thematic analysis as described by Braun, et al. (2019a, 2019b). The procedure involved phenomenological immersion in the informants' experiences, a reflective dialogue with the data, structured coding of transcribed text, and search for meaning patterns 35. (Braun & Clarke, 2006). The analyses itself consist of six phases: 1) Immersion in the data 2) search and coding of meaning units 3) reflections on themes 4) defining themes 5) Naming themes 6) writing. The aim is to follow a stringent method and at the same time alternate between the different parts of the analyses in search for depth and reflexivity.

REFLEXIVITY: With a positive attitude to intersubjectivity we perceive the researcher as an active agent who inevitably influences what emerges in the interviews and is responsible for the way data is interpreted. Finlay (2006) encouraged qualitative researchers be clear, thoughtful, and reflexive about their position and values when evaluating their research. In a similar way Binder et al. (2012) argue that new understanding only is possible through a fusion of the experience horizon, of our own and the informant's world. In this lies a positive attitude towards subjectivity, as long it is made conscious and is a part of the reflexive awareness, rather than being tacit in the process of understanding. The backgrounds of this paper's authors as a psychologist who also is a firefighter, and a specialized psychologist, also a professor in clinical psychology who has specialized in the field of trauma, is the foundation for our curiosity and hopefully our ability to understand the participants' experiences. Our converging and diverging perspectives based on the first author's lived experiences as a firefighter and the last author's extensive theoretical and empirical knowledge in the field of trauma, as well as slightly different psychotherapeutic orientations between the authors were used actively as an aid to discover and reflect upon assumptions, expectations, and our understanding of the data material. This was done to make our positions explicit and enable our horizons of experience to be moved in the encounter with the participants' experiences, while securing a high level of rigour.

ETHICS: The project was approved by the Norwegian Centre for Research Data. All participants signed a consent form prior to being interviewed. Participants were interviewed regarding potential traumatic experiences, and we therefore had a high degree of ethical reflection throughout the research process, particularly during data collection. The first author had both experience with therapy, making him sensitive to signs of distress and dysregulation, as well as personal experiences as a firefighter. This made him particularly qualified to carry out the interviews in ways that safeguarded the wellbeing of the informants. The informants were invited to share their experiences with the guarantee that the content would be anonymized, consequentially restricting those parts of the data which must remain confidential. Due to the focus in the interviews, the data material contains descriptions from serious traffic accidents that have been excluded from this paper because of issues of privacy. It is our hope that this paper is written with respect for each individual and their experience and will help to increase the understanding of the experience's firefighters work situation.

RESULTS

All participants reported extensive experience with serious traffic accidents. Yet, they shared how the frequency of serious accidents had been reduced dramatically over the past years: "After all the fatal accidents in 2011, the road

safety was improved and the speed limits reduced, it helped a lot” (Participant 5). The safety of cars also has changed: “The difference between before and now is better cars. Before people was stuck in a compressed car, now you just open the door and walk out” (Participant 9). Focus on firefighters’ mental health has also improved over time: “In old days you’ve supposed to do the job and shut up, now it is different” (Participant 9). One thing was still the same, though, you never know when, but fatal traffic accidents will happen and then it is urgent: “You know...if it is a traffic accident, then you gotta get there as quick as possible” (Participant 11). For an outsider, the experience can be difficult to grasp: “To really understand the magnitude and severity of how ugly it can be, you have to be there yourself” (Participant 3).

Through the analytical process five themes were created to organize the firefighter’s experience with traffic accidents: 1) The mobilizing effect of the alarm – fighting against time 2) The group unity in the fire truck - coordinating focus, preparing the team 3) Rescue work – I do what I must, but protect myself from the visual impressions 4) When the situation calms down – the need to talk about it 5) The long-term effects of rescue work - it affects you.

THE MOBILIZING EFFECT OF THE ALARM – FIGHTING AGAINST TIME: All participants described how the sound of an alarm activated a stress response, a readiness, and an increased mental focus. Some described it like activating a switch, others more like a mental state or a work mode.

When the alarm... and you realize what it is, it’s like activating a switch, your adrenaline raises, I get focused, very focused, first to leave home, then to arrive at the fire station, see my colleges and to know the team is set. (Participant 3)

The sudden transition to finding yourself in the middle of an emergency scene was described as a demanding experience. No one ask you to be ready, there is no time for preparation, with the sound of the alarm the clock ticks, you know it is urgent.

Regardless of where you are, what you’re doing, with the sound of the alarm you must reset yourself completely. You can be at the neighbours’ drinking coffee and having a good time... and then...you must mobilize. (Participant 5)

The participants explained how the focus was a part of mobilizing energy, preparing themselves to handle the emergency. The participants experienced that it was easier to reduce activation as opposed to mobilize more energy once at the accident site. Therefore, most of them actively used past experiences of harsh accidents to prepare for the worst as a way to protect themselves from being overwhelmed at arrival to the accident site:

We prepare for the worst... your thoughts go to the worst case. And then at arrival you’re more likely to think “this

wasn’t too bad” [...] Because if you arrive laidback and then.. Oh...my good... then you stress... and then you’re not the best version of yourself. (Participant 9)

Because the participants travelled from their home or main employer to the fire station in the event of a callout, their first focus was arriving at the fire station. Being activated, feeling the urgency and at the same time dealing with the tension between wanting to speed drive and drive safely was described by everyone as intense. Some admitted that they exceeded the speed limit, being aware of the risks associated. Others shared that they were consciously driving safe: “The drive to the fire station... you have to use your head. You can’t drive like an idiot, right? You have to be careful and not exceed the speed limit”. (Participant 11)

Some participants shared that they sometimes experienced disturbing thoughts on their way to the accident site, compromising their ability to be focused, think clear, and act rationally. For some these intrusive thoughts included anxiety to find their family injured in the emergency. For others it was more about the need to let their wife know what they were going to. In those situations, some made a call to which it might concern, to rule out or regain the focus necessary to handle the emergency they were going to.

Take yesterday’s emergency alarm, right? It said high priority on the display. Immediately I start thinking: Where are my children? My wife? I have to rule them out of my mind. I have to be sure they are not involved. I mean, you get worried if you know your family is out... driving.. and you get an emergency alarm. In a case like that, I just have to rule them out before you start driving, because otherwise this feeling... or anxiety.. will follow you all the way disturbing your thinking. I mean if so... you won’t be rational in your thinking. (Participant 7)

THE GROUP UNITY IN THE FIRE TRUCK - COORDINATING FOCUS, PREPARING THE TEAM: Arriving at the fire station was reported to be a relief by everyone. You change your attire, and drive out as a team, with blue lights and sirens: “When I get behind the steering wheel in the fire truck, I am relieved, finally you can drive fast... legally.. With blue lights and sirens, you’re in your element” (Participant 4). The importance of being a team, the team as a resilience factor, and the need to debrief as a team, stood out as important throughout the dataset. It was agreed that the planning and preparation on the way out, was vital to establish a shared mental model.

I want to leave with my team. The dialogue on the way out is important. You receive continuous status reports on the radio... where to go... what happened... how many involved... I like to prepare my team on what to expect and what to do. (Participant 6)

For those who experienced a call to an emergency between their home and the fire station, and therefore arrived directly at the scene, without the support of a team, said: “I stood

there... as little prepared as ever... because of the short drive, to such a serious accident". (Participant 12)

One participant shared how the transition from being a civilian to a firefighter with a professional role partly happened by getting dressed in the firefighter clothing, that it worked as a shield, and helped him take on a role: "I was wearing my fire fighter jacket. It was like a shield. With the jacket on you're in a professional role... you're focused". (Participant 12)

RESCUE WORK – I DO WHAT I MUST, BUT I PROTECT MYSELF FROM THE VISUAL IMPRESSIONS: The participants reported being focused on planning and preparation on their way out. At the same time, they stressed the importance of being able to adjust their plans and to be flexible when the information first given was different from the reality at the accident site.

Well, off cause, if the severity surprises you, right up your face... that this is more severe than the information given, you have to... You must readjust, analyse the scene, and try again to get an overview. (Participant 2)

Often, the information in the callout did not reflect reality, introducing added uncertainty for the firefighters:

The information in the callout is rarely or never accurate when it comes to traffic accidents. Once... at a traffic accident... the driver broke his back and was paralyzed. But we thought...we knew it was low speed limit on that road... nothing special in the callout. And then at arrival... no one was prepared for what actually happened. Most of the time, like 90 % of the times, the first information about the emergency is incorrect. (Participant 9)

Arriving at a site of a traffic accident was described as intense, chaotic, and hectic, with spectators and journalists potentially adding strain:

Sometimes people are crazy... climbing trees to take pictures... I mean, you are at a severe fatal traffic accident, all traffic is stopped, there is police investigation... And then you have individuals who try to press their vehicle through the roadblock because they are going to their cabin! Where is the respect? I mean, it could have been one of their relatives in the accident. (Participant 4)

The task orientated focus was described as an important aspect of being able to handle severe traffic accidents. Some participants shared how emotions and impressions were somehow registered but put a side, that the strong task orientated focus blocked other impressions, as long as there was something to do:

In the moment, I have such a strong focus ... on the work to be done... to rescue... that there is no room for anything else [...] For my part... it is like this... at arrival... regardless the severity. I don't see it... not at all... Not while working. (Participant 6)

At the same time, everyone shared stories from their work in the field, impressions, feelings, sounds, and smells, all too easy to recall. Feelings from self-efficacy to despair, when a heart goes from beating to be still.

I tore off a cover... down came a head right in front of me, like this... Half a head... I realized this was a passenger... pulled back... and thought to myself: Do not go in [...] I recall walking with the girl in my arms... everyone just moved aside [...] You know they talk about cold cases... What we have is warm cases... the body of a dead person is 37 degrees Celsius... the heart was beating five minutes ago, and suddenly... dead. (Participant 7)

It was agreed that traffic accidents involving children were the worst. One participant shared how rescue work with children made it particularly difficult to distance yourself, thus disturbing your task focus.

The reason why I remember this one, is because it involved a young child [...] Obviously when children are involved... there is nothing worse than that [...] it is... I mean... My children were the same age. Inevitable you relate yourself. You're also a parent... a father... It is easy to put myself in their position... in his... I mean the parents' situation, to that boy... The most precious you have laying there injured... easy to imagine that it was yours. (Participant 12)

The interviews also revealed that rescuing someone you know, challenged your professional role with the potential to bringing your emotions closer. For firefighters in Norwegian rural areas this is a reality that every alarm potentially involves people they know from before, grew up with, or is related to. Arriving and realizing that you are related to the people involved in an accident was one of toughest situations to handle at an emergency according to the participants.

I've experienced to arrive... approaching a compressed car with people stuck inside... and then, oh shit is it you. [...] That is the most difficult you experience... when you know both of the people involved [...] Without doubt... definitely the worst possible situation. I mean, a fatal accident... that is like... Well, such things happens but... It is those you know who are most difficult to forget... to rescue people you know is the extreme. (Participant 10)

It was said that inexperienced firefighters tended to be curious and wish to see what happened. Several participants shared that experience had taught them how visual impressions can burn into your memory, and therefore developed awareness to protect themselves when they could:

Do not look at their face. Because you'll never forget their gaze. It'll pop up again and again. That is something I learned. Regardless of what I do... focus on the job... do not look... look down. If he's stuck, regardless, do not look up, but down. At arrival... if your told to engage, that's okay, I'll do, but if not... hold back... you do not need to approach just to see... because if it's not for any good... you don't

need to expose yourself for the vision, just to see who it is sitting there, not if you don't have to. (Participant 4)

WHEN THE SITUATION CALMS DOWN – THE NEED TO TALK ABOUT IT: The participants shared that the intensity at an emergency slows down when the patients are handed over to the ambulance personnel. Some said it was like letting air out of a balloon, as returning to yourself again, with your focus broadening:

If you're informed that the emergency is over... that there is nothing more to rescue... then... then it is like you're returning to normal. Like, lowering your shoulders... If the doctor declares someone dead... then it is like the whole team calms down for a minute or two before you continue. (Participant 10)

Participants also experienced that it could be difficult to re-activate the stress response or the work mode after the situation had calmed down and you had lowered your guards. This meant it could be a bigger load to handle the deceased where there was a break between the initial emergency and releasing a deceased from a compressed car, like when the police needed time for investigation:

When you have lowered your guards... after an hour or two... and then you're asked to release a deceased from a car... then it is much harder than when you're in your working mode in the initial rescue... In those situations, I have felt that its harder to handle a dead person. You start thinking... you're calm... yeah that is definitely harder. (Participant 10)

The processing a fatal traffic accident started already at the scene, and progressed little by little, in several phases. Throughout the whole data set, a need to talk about the experiences emerged. Some shared that talking to others right after the rescue work was helpful, regardless of the subject:

Well, after the intensity calms down... you're left with... There is a contrast, from working fully engaged 120% to just standing there looking stupid at each other. Like, what just happened? What did we experience? In those situations we gather and talk. (Participant 2)

Some participant shared that black humour could be of part processing the experience, not as a part of the rescue, but at a later time.

We sometimes joke even after severe accidents. The humour is there despite the severity. I guess this is a way of processing... the body's way of handling what we experience out there. (Participant 6)

Everyone agreed that the debrief after fatal accidents was important. For the participants a vital reason was the tendency to be struggling with questions in the time following fatal emergencies like: What happened? Did I do well enough? Could I have done more? One of the participants shared:

A debrief is to go through... could we done something

different, right? You know, maybe someone is left with the feeling of failure... I didn't succeed... I couldn't find any pulse, right? Then it's important to hear from a colleague that there wasn't much you could do. We are not supposed to be able to... we are not paramedics. (Participant 2)

In the collected data, there was a self-reflective, non-judgmental, evaluating attitude: "A firefighter is always looking for... I mean you are self-critical; you always want to improve... Could we have done it differently? Better?" (Participant 12). Despite differences in how much each firefighter dwelled about what happened, there was a unison attitude that no one should be alone with their thoughts.

It is also helpful for the psychological processing to have a technical debrief [...] there is individual differences off course... between how much each and every one reflects about their participation, what they did, and what could have been better. But it is vital that no one is left to themselves with such kind of thoughts. Yeah, the talk after... it's vital. (Participant 12)

Implicit in the data, was the importance of the community, the group, and the colleagues. It was said that it was healing to hear details you didn't perceive in the field. That there was a need to get answers to all the questions you're left with, to feel the groups' support, and get the confirmation that you did your best or help to clarify what to do better next time. Between the lines was the fact that exposure to new fatal accidents might happen again, at any time, without warning. It seemed important for the participants to get their questions answered to process what happened and avoid adverse thoughts.

It means everything. I must empty my mind... because if you don't... if you return home staring at the walls... then you start talking to yourself... ruminating. You need to talk with someone who were there with you. (Participant 4)

THE LONG-TERM EFFECTS OF RESCUE WORK - IT AFFECTS YOU: The experience of returning home after a callout to an emergency varied. It was expressed that it felt good to come home, but also challenging at times, because of the contrasts between the catastrophe of a fatal accident and the cosy atmosphere at home. On participant said:

I always prepare myself to come home beforehand. Checking in... What they are doing... how things are at home. Just to be able to adapt... get into their modus. But I do not always succeed. That one time... I couldn't... it was... then it was hard to come home... is was impossible to come home with a smile [...] I just released a person from a compressed car... dead... severe injuries... you feel it in your whole system, in your fingers, that you just handled a person and then... then you return to home baked cake and family time with the children. (Participant 6)

Every one of the participants shared that there were some

experiences affected them more, that lingered in their system after a callout to severe accidents. Some shared that their family could tell when it had been harsh at work. One of the participants said that he never felt anything himself, but his wife did. Most of the participants explained that it helped to have someone at home to talk to. That you need someone around you after a difficult day at work: “She is incredible. She is competent when it comes to conversation, she makes me talk... we talk... Without her, I am not sure if I could stay in a job like this”. (Participant 3)

Everyone talked about the need for processing. The images, the questions, and thoughts come to you in days following a fatal accident, they said. In those situations, it was found vital to have colleagues who were there with you, who remembered the episode, someone to discuss with, so that you could clarify what happened and let it go.

When you calm down... then the images reappear... and then you start thinking... reflect... The impressions from the emergency... you won't get them immediately, they'll take a few days to get you. Regardless of the debrief. I guess they'll take a few days to come... for me anyway... Then the reflection comes... was I good enough? In those situations, it is important with collages, to reflect with. (Participant 6)

Participants experienced that a high frequency of severe accidents disturbed this part of the processing, with new accidents delaying the processing, making it harder to find someone who remembered what you needed to clarify.

The way I see it... your mind needs to go through and finish an emergency before you can process a new one [...] You experience something, that you definitely need to process, but then comes something on top, and then you forget for the time being [...] It is not always... that you have enough time to process an emergency before you're called out to the next one. (Participant 6)

Several shared that they were concerned about the risk of burnout. Among the participants, there was this idea, that there is a limit for how much you can withstand, or a limit to how much your nervous system can tolerate: “I think... at some point, enough is enough” (Participant 3). When that day comes, it will be too much; it will be difficult to get the experience out of your system. One of the participants experienced seven fatal accidents within a short period of time.

We had seven rapid fatal accidents [...] you end up with a lot going on in your mind. It was a lot to process... difficult to let go of... at that point, I could feel that now you're losing it [...] this is what concerns me... If this could be the final drop... what happens then, and how do you know when you're there, when is enough, enough? (Participant 6)

All the participants have experienced how serious and vulnerable life can be at times. They all tried to save people and failed. Their experiences were individual, but also

experienced, handled, and processed in a community of colleagues. Everyone interviewed explained that they were affected by their job. They knew, out there on the road, the margins from happiness to despair can be like a blink of an eye.

Well... I know how small the margins are from happiness to despair... it is small margins... it is [...] they were one their way to something... and that changed dramatically in an instance. Our experiences out there on the job make us more aware of the margins we have in life. (Participant 12)

DISCUSSION

The aim for this study was to gain insight in firefighters experience of rescue work at severe traffic accidents. Through qualitative semi structured interviews and reflexive thematic analysis five themes were identified: 1) The mobilizing effect of the alarm – fighting against time 2) The group unity in the fire truck - coordinating focus, preparing the team 3) Rescue work – I do what I must, but protect myself from the visual impressions 4) When the situation calms down – the need to talk about it 5) The long-term effects of rescue work - it affects you.

In the following, we will discuss how the participants' experiences of the stress response and how they regulate their activation might help us to understand their coping strategies. Second, we will discuss how we can understand the participants' approach to process the impressions from their work. Further, how the idea of burnout can be understood considering the participants' experiences. Finally, we will reflect on methodological issues, and outline implications of the findings.

This study revealed how the participants found the stress response helpful and challenging at the same time. It seems like the participants actively regulated their activation to match the demands of the emergency as a coping strategy. Activated enough to be ready and sufficient, and calm enough to think clearly and act rational. According to the participants, arriving an emergency with low activation could cause the feeling of being unprepared and lead to more stress, thus challenging their ability to act rationally and fulfil their tasks when the emergency was more severe than expected. The regulation of physiological activation, is complicit with polyvagal theory (Porges & Dana, 2018). Activation alone isn't necessarily helpful if it causes hyper- or hypoactivation. For the callout to have a mobilizing effect, and prepare the person for a complex emergency rescue, the theory argues that it is fundamental to stay within the individual tolerance window (Nordanger & Braarud, 2017; Porges & Dana, 2018). The findings are aligned with that idea.

As a way to regulate activation, it seems like the participants have developed a tendency for worst-case scenario preparation. Also labelled defensive pessimism, defined

as: “The tendency to prepare for the worst-case, with the intention to avoid aversive experiences and rather be positively surprised” (Cantor & Norem, 1989). At the same time, the interviews reveal the complexity in worst-case preparation, because imagined scenarios can be so aversive that it potentially disturbs rational thinking. Like the imagination of your own children heavily injured.

Another learned coping strategy was shared in the slogan “do not look into the eyes of a dead man”. It was said that you’ll never forget, thus encouraging focus on the task at hand. In the literature, task orientated focus is associated with lower levels of PTSD symptoms after fatal emergencies, but only for the group of firefighters who received training (Young, et al. 2014). Long experience and locus of control is also associated with higher resilience for firefighters (Brown, et al. 2002; Onyedire, et al. 2017). This study contributes by elaborating how the participants use task orientated focus as a protection against aversive visual impressions.

To summarise, the participants reported a willingness to do what was needed. They were constantly ready to readjust to situational demands. At the same time, they protected themselves as much as possible, by focusing on their task. This can be understood as having psychological flexibility, defined by being able to adjust yourself in a continuously changing environment and consists of the ability to change perspective and balance attention between competing needs (Kashdan & Rottenberg, 2010). Kashdan og Rottenberg (2010) found psychological flexibility to be positively correlated with high self-regulation defined by the ability to effect one’s internal state to maintain normal function. Psychological flexibility also consists of the ability to invest energy to a demanding situation and meanwhile reserving enough energy for potential significant situations in the future (Kashdan & Rottenberg, 2010). This study contributes by describing the complexity in being sufficiently activated, and how the participants through experience have learned to protect themselves from impressions which can be difficult to forget.

Despite aversive situations at work, it seems like the participants have developed coping strategies that help them to stay flexible in their activation and responses towards their experiences. This can be understood as an indication that they aren’t traumatized. At the same time, it’s not everything you can shield yourself from. According to the participants, the group unity, and how experiences is passed on, together with the informal and formal debrief in a group or with a colleague, was reported as fundamental in order to remain in a job as a firefighter. Even tough debrief as a concept have been criticized in academia (Rose & Bisson, 1998; Rose, et al. 2002; Van Emmerik, et al. 2002), several studies regarding firefighters find debriefing associated less negative symptoms after severe rescue work, and some argue debriefing have an indirect effect by supporting group unity and teamwork (Hagemann, et al. 2022; Hawker, et al.

2011; Salleh, et al. 2020; Sattler, et al. 2014). What seems to be missing in the literature is how firefighters find the conversation helpful in the contexts of their experiences. The participants in this study reported a need to get three questions answered: What happened? Did I do well enough? Could I’ve done more? Furthermore, it was reported important to have access to colleagues who experienced the same as you, because they might remember something you didn’t, thus having part of the answers you are seeking. As stated by the participants, unanswered questions are difficult to let go of, making rumination more likely, and thus making it more difficult to go on with your life. In the literature it is well documented, that high frequency of callouts to severe emergencies is associated with higher prevalence of mental disorders for firefighters (Harvey, et al. 2016; Pinto, et al. 2015). The data in this study gives a suggestion why. According to the participants, processing experiences from severe accidents takes time. It was said that some of the questions likely to foster rumination mature slowly. High frequency of accidents was said to disturb this process. Both because it can be difficult to tell the accidents apart, and because colleagues who remember something of importance to you, are more likely to forget over time. The participants’ attitude to processing their experiences is in accordance with the therapeutic field’s approach to processing trauma. It is often emphasised the importance of clarifying what happened and establish a coherent narrative (Greenberg & Goldman, 2019). An important part is to dissolve possible self-criticism and understanding one’s part in what happened (Greenberg & Goldman, 2019; Paivio & Pascual-Leone, 2010). The idea that access to colleagues in the time after severe incidents is helpful is also supported by Salleh et al. (2020) who found support from colleagues reduces incident related stress. Similar, social support from a superior is also associated with better health and lower symptoms of PTSD for firefighters (Armstrong, et al. 2014; Bernabe & Botia, 2016). This study elaborates on why high frequency of callouts is demanding and supports the importance of social support from both colleagues and superiors.

Despite social support several participants shared a concern for burnout. Some explained being on the edge without being able to clearly explain how to understand this phenomenon. The reality for the participants was that they never knew what comes next, even off duty a callout to catastrophic incidents was a possibility. Participants shared the idea that no one really can know when the day comes, that enough is enough. An important point of reflection is, thus, this tension between the necessity of stress, and the negative consequences of stress as explained by the participants. According to Sapolsky (2015) moderate stress is positive and stimulating, it enriches our life. Overwhelming stress on the other hand, can cause harm to the nervous system, resulting in uncontrolled activation of the stress response, and reduced function of the regulatory system whose job it is to end the stress response (Nordanger & Braarud, 2017).

In other words, strong exposure to stress, reduces our ability to end the stress response causing difficulties with down regulation when rest is needed. A reactive stress response is also used to explain flashbacks and intrusive memories (Nordanger & Braarud, 2017; Sapolsky, 2015). Our findings are aligned with this explanation. Everyone explained that they loved their job, some shared episodes with intrusive memories, others experienced high frequency of several fatal accidents with subsequent difficulties in moderating the stress response at times. In this way, burnout can be understood as a fatigue caused by an impaired regulatory system, with a reactive alarm system which is difficult to modify because of experienced stress over time or severity. The participants' concern for burnout seems to be a fundamental part of how severe traffic accidents are experienced. The participants in this study illustrated an awareness towards the risk of psychological strains, they actively tried to protect them self, but never knew the severity of their next emergency, or if the day would come where enough is enough.

METHODOLOGICAL REFLECTIONS: Recruitment of participants was organised through the safety representative at the fire station chosen for the study. In sum, 25% of the fire fighters employed were interviewed. There is a chance, that the participants recruited were affected by a wish to present the unit in a positive light and therefore excluded some voices. On the other hand, other sample experience for this study. The total amount of experience represented by the participants, together with the variety and the nuances in the data, support in the authors' view that the safety representatives help has been a greater advantage than disadvantage.

All participants had long experience. This has potentially implications for how the result can be interpreted and understood regarding transferability. The healthy worker effect is used as a term to explain that those with traits not able to handle a given load is more likely to quit (Shah, 2009). It is possible that the qualitative experience among those firefighters no longer active would be significantly different from the data collected. Therefore, the data must be interpreted and understood within this context. On the other hand, the homogeneity of the data strengthens the foundation to understand how firefighters with long experience from rescue work at severe traffic accidents experience their work, what it takes to be in this profession over time, and hopefully support our understanding of the impact rescue work can have on those who remain in the service.

This study is retrospective with the limitations that follow. The experiences shared in the data goes back in time, experiences which often have been shared in a debrief, other contexts, or in the news. It is well documented that people in general have difficulties monitoring where details in memories come from, because of the way memories consolidate (Loftus, et al. 1978; Maswood, et al. 2019). In situation descriptions, were it to be possible, may well give

different data. At the same time, it is valuable to study how events are remembered retrospectively because it is those memories each firefighter has to live with over time.

IMPLICATIONS: From our view it is indisputable that firefighters execute demanding, stressful, and aversive rescue work at times, with a higher risk for stress related disorders. It would therefore be beneficial to examine what can be done to support or reduce this burden. To facilitate firefighters' resilience, we encourage reflection on how magnitude, intensity, and frequency interact in the need to find the delicate balance between healthy and unhealthy stress. For further investigation we recommend investigating what firefighters do or can do to be optimal prepared for emergencies.

A firefighter's work is often balanced between experiences of self-efficacy and despair; therefore, it seems important to reflect on who is either in front or held back, both in the light of individual differences, experience, and past exposure, probably several other factors. We also recommend focussing on how to support down-regulation after a stress response. From the participants' perspective, it seems like regular training, the conversation with and the support from colleagues, as well as thriving in one's own family is important to facilitate resilience. Further research on the effect of colleague support and how to implement this intervention will in our view be beneficial for the field.

Debrief was reported to be vital by the participants. The literature in the field is divided between those positive or sceptical to debrief. It seems that there is a need for clarification. Both concerning definitions, who it is for, and to what extent a debrief has a useful effect. Research exclusively on firefighters will hopefully give better answers what counts for in their occupational field. It is not necessarily the case that a debrief has any measurable effect just because the participants in this study report it to be helpful. At the same time, their experience should inform further research.

CONCLUSION

This study gives a new insight into firefighters' experiences of rescue work at severe traffic accidents. The finding reveals that the participants experience severe traffic accidents as one of the most aversive callouts possible. The alarm seems to have a mobilizing effect; followed by a strong task orientated focus and a strong wish to arrive at the scene as quickly as possible. In action, the participants reported a will to do what it takes, though with an awareness of how to shield themselves from the most aversive impressions at the scene. In the days that follow rescue work, the participants reported a need to process their impressions and find answers to the questions they are left with, typically questions like: What happened? Did we do well enough? Could we have done more? The debrief and the conversations in the days

following the rescue work stood out as important, together with time, because some of those questions who can cause lengthy rumination if not answered matured slowly. The participants expressed a need to go on with their life after emergencies and not to think too much of their experiences. High frequency of callouts to severe events can make it difficult to let go, cause flashbacks, rumination, and a feeling of burnout.

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