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The Role of Group Formation and Interpersonal Connections in Support: A Qualitative Analysis of Social Structures in Emergency Services Organizations and Hospital-Based Emergency Settings

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Abstract

Professionals in emergency services organizations (firefighters, paramedics, police, military) and professionals in hospital-based emergency settings (emergency rooms, operating rooms, intensive care units) are frequently exposed to potentially traumatic events. They are at higher risk for the development of trauma-related mental health problems than the general population. To maintain mental health, it is essential for individuals to be embedded in a social environment with supportive relationships. We employed ethnographical research that explored the social environment of seven high-risk professional groups in the Netherlands through observational fieldwork, interviews, and document analysis. We analyzed the data using Chie Nakane's social anthropological model of Group formations and interpersonal connections as a heuristic lens. Findings indicate that in the social environments of these various high-risk occupational groups, two different social structural tendencies can be distinguished: vertical versus horizontal group formation and interpersonal connections. In our discussion, we suggest how these different social structures in which the professional is embedded might explain inconsistent results in current studies, and how knowledge of these different social structures might be relevant for support and prevention of trauma-related mental health problems.

Keywords

emergency service organizations, specialized nurses, social environment, social structure, sociology, social sciences, social support

Introduction

Professionals in emergency services organizations (firefighters, paramedic, police, and military) and professionals in hospital-based emergency settings (emergency room, operating room, and intensive care unit) are frequently exposed to critical events. These professionals are at higher risk for the development of trauma-related mental health problems than the general population (Jones, 2017; Lee et al., 2020; Matthews et al., 2022; Petrie et al., 2018; Wagner et al., 2020). Meta-analytic research shows that social support is a major protective factor against posttraumatic stress disorder (Wang et al., 2021). It has been hypothesized that supportive social connections can facilitate adaptive coping and helps to

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process overwhelming experiences (Calhoun et al., 2022; Southwick et al., 2016).

The individuals' expectations about which connections are supportive in times of stress, known as network orientation (Clapp & Gayle Beck, 2009), are influenced by generalized personal assumptions that emerge from previous experiences with the help offered by others (Thoits, 2011). Although family and friends may be geographically close and are often available to offer emotional support, they may not always be the ones to whom professionals turn to for support. A person can have a stronger feeling of belonging to a network of work colleagues where the sense of community revolves around shared experiences. When Corporal P. returned home after a peace mission, his attention at the airport was only briefly focused on his girlfriend: "I loved my girlfriend, for sure, but things changed, I can't explain. I went through customs, embraced her, kissed her, and went back to the platoon. She just sat there as an outsider" (Document 01).

Review of the literature shows that the person(s) to whom professionals turn to for support may vary significantly from one occupation to another. When looking at relevant supportive relationships (peer, supervisor, friend, or family member) within occupational groups, results are contradictory (Geuzinge et al., 2020). An earlier reported content analysis of this ethnographic data found connections among military personnel, professional firefighters, and police officers are often family-like and hierarchical in which group unity is highly valued. Whereas paramedics as well as most specialized nurses working in emergency departments, operating rooms, and intensive care units seem to value individuality and autonomy in their relationships at work (Geuzinge et al., 2024). The contradicting findings among firefighters, volunteer versus career, and among operating room teams, anesthetist versus surgery, resembles the contrasts Chie Nakane found in her social anthropological research in India and Japan. This is the rationale for using her concepts as a heuristic lens, which we will clarify in the method section. Nakane initially conducted a sociological structural analysis of social group formation and interpersonal connections among local corporate groups in rural Japan (Nakane, 1967). Subsequent research extended this analysis to industrial enterprises, government organizations, and educational institutions, and included cross-cultural comparison with India and England. Nakane showed that her concepts facilitate understanding of group organization and the prevailing structural tendencies influencing group development in a wide range of contexts (Nakane, 1998). However, as Nakane did not specifically study the professionals in our research, nor did Nakane make cross-comparison within a single culture, we carefully examined their applicability for our research.

Nakane's Analysis of Social Group Formation and Interpersonal Connections

Nakane's analysis identifies two different criteria of group formation. One criterion of group formation and interpersonal connections is based on the individuals' common *attribute*. The other criterion is based on their situational position in a set *frame*. An attribute is often acquired through education, such as "medical doctor" or "nurse". Highly specialized professionals may not only feel belongingness with peers in their own organization, but also with peers with the same attribute in other organizations. This group formation and its interpersonal connections are denoted as a horizontal social structure. Frame is a criterion that sets a boundary and gives a common basis to a group of individuals with different attributes. An example of this can be found in a car company where designers, software programmers, mechanics, electricians, and their supervisors manufacture "in line". This is denoted as a vertical social structure (Nakane, 1998).

In any society, individuals are gathered into social groups on the bases of attributes and frame. These criteria usually overlap because many individuals belong to multiple groups simultaneously. For example, a specialized scholar may feel connected to scholars who work in the same field (attribute), while also feeling connected to colleagues at his own university (a defined frame). However, according to Nakane's analysis, there are certain organizations where one of these criteria, typically frame, tends to exclude the other. Examples of such exclusions can be observed in life on container ships or in remote oil company compounds. In these environments, professional life tends to overlap with private or leisure life. In the context of this study, it is noteworthy that the weight given to frame or attribute is closely related to the values that develop within the social consciousness of the group members (Nakane, 1998).

Method

Aim

The purpose of this research is to deepen the analysis of the social environments of firefighters, paramedics, police officers, and military personnel, along with specialized nurses working in emergency rooms, operating rooms, and intensive care units. We aim to understand the protective and supportive role of social environments in relation to trauma-related mental health risks.

Setting and Sample

Ethnographic research was conducted in organizations where firefighters, ambulance paramedics, police officers, and military personnel work. We included distinct

Table 1. Units and Methods per Setting.

Setting: firefighters	Observation (hrs)	Formal interviews (amount)	*N*
Academies/National Center		M, Se (1); F, Se (1); Se M + F-team (1)	3
Professional station city R (3 ladders)	72	M, Se (2)	2
Professional station city A	9	M, Se (6); F, Se (1)	7
Professional station city N		M, Se (1); F, Se (1)	2
Professional station city E		M, Se (1)	1
Volunteer station village G	3		
Volunteer station village L	3		
Dispatch Center	5		
Total	*92*		*15*
Setting: Ambulance			
Assessment Center	16	F, Se (1)	1
Station city N	16	M, Se (1)	1
Station T		M, Se + F, Se (1)	2
Station village M	8	M, Se (1)	1
Station village L		M, Se; M, Me (2)	2
Mobile Trauma Team	4	M, Se (1)	1
Dispatch Center	7	M, Se (1)	1
Total	*51*		*9*
Setting: Police			
Academies/Assessment Center		M, Se (2); Ju (1 class)	3
Resilience training (3 days)	21	M, Se (3); F, Se (1)	4
Station city A	9	F, Se (1); M, Se (1)	2
Station city B	9	F, Se (1); M, Se (1); M, Me (1)	3
Station town C	9	M, Se (1); F, Se (1)	2
Dispatch Center	7	Fe, Se (1); M, Se (1)	2
Total	*55*		*16*
Setting: Military			
Academies/Assessment Center	24	F, Se (2)	2
National Center for Veterans		M, Se (3)	3
Total	*24*		*5*
Setting: Hospitals			
Nursing Academy		F, Se (1)	1
Academy OR		F, Se (2); M, Se (1)	3
Academy ER		F, Se (2)	2
Academy ICU		M, Se (1)	1
Hospital X Emergency Room	16	F, Se (2); M, Se (1)	3
Hospital X Operating Rooms	54	M, Se (2); F, Se (4)	6
Hospital Z Operating Rooms	16	M, Se (2); F, Se (2)	4
Hospital X Intensive Care Units	12	F, Se (2); M, Se (2)	4
Hospital Z Intensive Care Units	12	M, Se (2)	2
Total	*110*		*26*
Total	**332**		**71**

Note. M = male; F = female; Ju = junior (0–2 work experiences); Me = medior (2–5 work experiences); Se = senior (+ 5 work experiences).

hospital units where specialized nurses work, that is, emergency rooms, operating rooms, and intensive care units (Table 1 Units and methods per setting). In the selection of the settings and its participants, we sought maximum variation (purposive sample; Patton, 2015) and therefore choose organizations and hospitals that are evenly distributed over the regions of the Netherlands, as well as over city and rural regions.

Data Collection

The data of this article were collected through observational field work (participant observation in a 12-month period) whereby the primary researcher (RG) participated and followed the professionals in their daily activities (Bernard, 2018). Observational fieldwork at fire departments included 24-hour/3-day shifts, "ride-alongs" with firefighters, participation in daily training sessions,

and informal interviews with several firefighters. As 80% of the firefighters are volunteers, the researcher also conducted fieldwork at two volunteer firefighter stations in rural areas. In the Netherlands, the fire and ambulance departments are located at separate stations. Fieldwork was also conducted at several ambulance departments (cities and villages), including a mobile (helicopter) trauma team. Police department fieldwork included observations and informal interviews with officers on duty. Observations within the military department were limited to interviews. Paramedics, firefighters, and police officers were also observed in their daily routines at a regional dispatch center. Two large hospitals were contacted to conduct fieldwork in an emergency room, several distinct operating rooms, and intensive care units (Table 1).

In addition to the observational data, the researcher conducted in-depth interviews with administrators or chiefs of every organization where the fieldwork took place. These were carried out before and after conducting participant observation (Table 1). The selection of interview participants was based on an iterative process, that is, purposeful sampling (Creswell & Creswell, 2023). We enriched the data by conducting observations and interviews, performing preliminary analysis, and then selecting more respondents to address emerging questions (Crabtree & Miller, 2023). Based on the idea that the professional socialization process provides information about the social environment, additional in-depth interviews were conducted with trainers and teachers at academies of every distinct occupational group. To maximize variation and even further enrich the data we also selected interviewee participants located at other settings than where fieldwork took place.

The study also included examining selected (nonconfidential) documents, that is, texts, autobiographies, and documentaries. Since no observational fieldwork was carried out in settings where active military personnel work, we included more data from these kinds of documents. Based on the idea that the professional socialization process provides information about the social environment, we focused our selection on documents related to education and training.

Ethical Considerations

Formal approval of the study was obtained from the Ethics Review Committee (Institutional Review Board) of the University of Humanistic Studies in Utrecht. Administrators of all involved organizations gave written permission to conduct this research. Employees were informed beforehand about the current study which assured the voluntary nature of participation in interviews. Only the primary researcher had access to the raw data, that is, the non-anonymized field notes, journal, and interviews.

Data Analysis

For the analysis, we revisited our ethnographical data and turned to Nakane's analysis of social group formation and interpersonal connections. We used these concepts as a heuristic lens through which we reanalyzed the data.

The characteristics of frame-based and attribute-based group formation, as Nakane described, are summarized in Table 2. The first author analyzed the observational field notes, the reflective journal, and 71 in-depth interviews and coded the data based on Nakane's characteristics. This process was checked and validated by the second author. Doubts between the authors were resolved through a discussion about the data with the whole research team (presented authors).

Quality and Procedure

Recent developments in qualitative inquiry promote self-reflexivity of the researcher as an important quality procedure to foster rigor and allow the reader to assess possible biases (van Wijngaarden et al., 2017). The researcher who conducted the observational field work and in-depth interviews is a clinical psychologist with knowledge of group dynamics and expertise in the treatment of trauma. This positionality stimulated the researcher to reflect on relationships, interactions, and interaction patterns, and in system thinking. Additionally, Creswell's quality criteria and procedures were followed to foster rigor (Creswell & Poth, 2017).

Findings

We found that the social environments of some occupational groups meet the criterium of frame-based group formation and interpersonal connections, while the social environments of other occupational groups seem to meet the criterium of attribute-based group formation. We first present in interdependence and in more detail the characteristics of frame-based group formation (Table 2), and we illustrated them with quotes from interviewees or observations. We then present, as a comparison, the characteristics of attribute-based group formation, again illustrated with findings. The primary concern of this analysis is the relative degree that each criterion, frame versus attribute, affects the social environments of the professionals.

Table 2. Characteristics of Frame-Based Versus Attribute-Based Group Formation and Interpersonal Connections.

Characteristics frame-based group formation	Characteristics attribute-based group formation
1. *Group formation: Frame*	1. *Group formation: Attribute*
a. Family-like	a. Affiliation with an attribute
i One-to-one vertical relations with superiors	i Collegial relations
ii Emotional involvement (participation)	ii Low (emotional) involvement
iii Internal heterogeneity & external homogeneity	iii Internal homogeneity & external heterogeneity
iv Unity and solidarity	
b. Private sphere intrusion	b. No private sphere intrusion
2. *Internal structure: Vertical principle*	2. *Internal structure: Horizontal principle*
a Hierarchical relations	a Equal relations
b Small cores (duplicates)	
c Ranking	
d Top-down communication	
e Noncooperative	b Cooperative
3, *External structure*	3. *External structure*
a Vertical stratification	a Horizontal stratification
b Closed worlds	b Open worlds
4. *Consciousness*	4. *Consciousness*
Group>	a Universalism
	b Individuality
5. *Members orientation*	5. *Members orientation*
a Educated (and socialized) within frame *(values)*	a Universal education (attribute)
b Local outlook *(frame values)*	b Outside world
c Limited mobility, lifetime employment	c High mobility
d Friendships in and around work	d Broad network
e Imposed aims and unanimous decision making	e Individual autonomy

Frame-Based Group Formation and Interpersonal Connections

Family-Like: One-to-One Vertical Relations and Emotional Involvement. *Family-like* group formation (1.a in Table 2) is very present in the military. We also found this characteristic in police organizations, professional fire departments, and, to some extent, in surgical teams. A sub-characteristic of family-like group formation is that affiliations are based on *one-to-one vertical* superior-subordinate relationships (1.a.i in Table 2) which resemble the parent-child relationships in a traditional family. A rigid pyramidal hierarchy, where there is a strict chain of command without questioning, may be observed among firefighters, police officers, and military personnel. We also found a paramilitary incident command structure in surgical teams. However, from observational field work and informal interviews with surgical team members, we noticed a graduality that was dependent on the criticality and specialization.

These vertical hierarchical connections emotionally tie members to the frame. This is another sub-characteristic of family-like group formation. The groups tend to have a high *emotional involvement* (1.a.ii in Table 2). During an formal interview, a senior perioperative nurse elaborates on her strong bond with an oncologist surgeon she has worked with throughout her entire career. Their close bond becomes even more evident when she shared that, after his retirement due to cancer, she kept in close contact with him until he died (Field note).

Internally, frame-based groups are *heterogeneous* and bring together various attributes while *externally* appearing as *homogeneous* (1.a.iii in Table 2). To overcome their internal heterogeneity, frame-based groups emphasize *unity and solidarity* (1.a.iv in Table 2) to create a feeling of oneness among members. This was found in hospitals in the way perioperative nurses and surgeons work closely together as surgical teams in operating rooms. These nurses know the inside-outs of the particular surgical procedures as well as the surgeon's specific wishes and preferences. "He likes to operate with Wagner. It relaxes him, so we put on a tape even before he enters the operating room." Another perioperative nurse proclaims: "You should see how he [the surgeon of her specialization] reacts when he sees an unfamiliar face [a nurse from another specialization] next to him: he just downright rejects her" (Field note).

In short, since frames unite a disparity of attributes (something rational), an emotional approach to relationships among group members creates a feeling of "being one family."

Private Sphere Intrusion. Frame-based groups can intrude on the private and personal sphere of the individual professional (1.b. in Table 2). It is well known that

the military, for example, often forms a distinct social group regarding physical arrangements with its employees and their families. We found this illustrated in the provision of company housing, and even sometimes the availability of a common cemetery similar to a family grave. In this way, an organization facilitates the whole social existence of its members and exerts power over many aspects of their lives. We noticed that military and police personnel are often deeply and emotionally involved in the organization, and their work is made central to their lives. Looking at these two occupational groups we found that, personal problems of its member must be settled from within this single frame alone. When ill or unwell, the organization provides a physician, a mental health professional, or in case of the military, even a hospital. From interviews with firefighter chiefs and police officer chiefs we noticed that they often sounded proud when proclaiming that they had fixed the (mental) health problems of their personnel without outside help.

Internal Structure: Vertical Principle. The internal structure of a frame-based group is based on a vertical principle (2. in Table 2). These organizations consist of *small cores* (hereafter termed subgroups). This can be seen in the same professions as above with their squads, pelotons, platoons, ladders, or surgical teams with the preeminence of one-to-one *hierarchical relations*. These subgroups are to a certain extent characterized by *ranking*, *top-down communication*, as well as *noncooperation* between subgroups. Many of these three internal structure characteristics are found among the military, the police, and professional firefighters. The characteristic of noncooperation was also found among teams in the operating room.

Group Consciousness. In a frame-based group, the feeling of oneness (group) is greatly stressed while individual autonomy is discouraged. Both characteristics were found among military and police personnel, firefighters (volunteer and career), and perioperative nurses.

The feeling of oneness is encouraged by *education (and professional socialization) on the job within their frame* (5.a. in Table 2). This can be seen among military personnel, firefighters, and police officers, who are educated (and socialized) within their employing organization. This strengthens unity while strengthening the frame even further. These professionals are often socialized during their formative adolescent years, that is, before the age of 20, and a considerable number of these young adults are even recruited before they finish school. There are even schools that offer a preparatory curriculum that fulfills the entry requirements for the military or police academy. Youth fire brigades promote interest and prepare young people for working in fire departments.

The intense and regimented basic military training serves not only to instruct and immerse personnel in practical skills, but also to achieve its goal to socialize new personnel. The intention is to transform civilians into soldiers, sailors, marines, and airmen. The transition from civilian to military life requires acclimatization to an institutionalized lifestyle, whereby individuals must submit to intense physical training and teambuilding drills. The individuals must also adapt to concentrated, unremitting supervision and separation from their families. Basic military training includes more than just training in technical skills. It also provides education about military history, introduces the lifestyle throughout the career and beyond, and indoctrinates military standards, ethics, and values. The individual's moral and mental attitudes are also part of the socialization process, as they are assumed to have an essential bearing on team effectiveness. To a certain extent, we also found this among firefighters and police officers.

Early socialization in which the feeling of oneness is stressed is also deemed to be important in police departments. A teacher at the police academy explained that just shortly after novices start their training, the class visits a memorial monument where fallen police officers are remembered: "I tell them, 'Look, you could be one of them.' The assignment is to go to their own team to find out if one of their colleagues died, to learn the story, and to write it down. They then should look for his picture at the memorial plaque and read the story of that person right there, out loud" (Interviewee P02).

The education of new firefighters often occurs informally while relaxing together in the evenings, a time without a tight schedule if there are no emergency fire incidents. This is time spent together in the living room and usually around the TV. This provides many opportunities to communicate and tell stories about their own experiences and retell stories told by other firefighters. The stories shared in those moments usually had many contextual details, insights, surprising twists, and a fair share of drama or humor. The stories often include tales about the near misses of others or practical jokes they pulled on each other. Such stories seemed to have an educational effect on new firefighters or novices. It is through these stories that new firefighters learn practically and morally what is the "correct" thing to do.

The education of perioperative nurses in the Netherlands also demonstrates a frame-based characteristic (5.a. in Table 2). Contrary to most other countries, perioperative nurses do not need any pre-requirements of basic nurse training before following this specific

"nurse specialization." Instead, perioperative nurses, also known as "surgical assistants," have their own training and education centers which are mainly located within the hospital. In these training centers there is a strong emphasis on teamwork, that is, working on a surgeon's team. These nurses usually start training during their late adolescent years, that is, around 17 to 19 years of age. When observing perioperative nurses during their break in the coffee room, it was apparent that their sphere of living is concentrated mainly in the workplace community. They regularly talked about their private lives and seeing each other as friends outside of the workplace. Love affairs with co-workers or marriages within the work community are common (5.d. in Table 2).

Members Frame Orientation. We noticed that many of the above-mentioned professionals seem to become primarily oriented on the frame, and they gained a *local outlook* (5.b. in Table 2). This seems to *limit their mobility*, that is, change of employer, during their career (5.c. in Table 2). Police personnel and firefighters remain with the same employer for a long time. Many start and complete their career in the same service, beginning with training at the academy. *Lifetime employment* goes along with an integral and lasting commitment between employee and employer. Loyalty in the military, police, and firefighting is highly regarded and confirmed by paid education and seniority payment. Lifetime employment has advantages for both employer and employee. The employer retains the services of skilled professionals in times of personnel shortages. On the other hand, for employees with specialized skills less valued elsewhere, they are secured against surplus labor and guaranteed an income for life, even at the expense of career mobility.

Group Consciousness: Us-Versus-Them. According to Nakane's analysis, frame-based groups can become insular from society at large. Frame-based occupational groups may adopt an "*us-versus-them*" mentality towards the general public. This mentality can be expressed in many, even in seemingly, innocent ways. Military personnel, for instance, use (and speak in) numerous acronyms and abbreviations that outsiders do not understand.

Among police officers, we found this "us-versus-them" mentality in the names they use for civilians. Derogatory and racist terms, as well as invectives, show differences between the in-group and the out-group. Police officers also have their own humor, which others may not readily appreciate. This "us-versus-them" mentality can sometimes aggravate to the point that anyone outside "our people" ceases to be considered human: "A cop is a social garbageman: we have to clean up the trash from society" (expression from a police chief, field note).

This "us-versus-them" mentality does not only concern the general population. We also saw this within operating teams, namely between surgical and anesthesia members. Despite working together in caring for a patient, conflicts about tasks or responsibilities seem to be common. The manager of a large operating department simply summarized this as follows: "the screen of drapes [between the patient's face and the surgical area] is an actual divide between anesthesia and surgery. They do not even want to see each other" (Interviewee SN05).

Human relationships within one's own frame can become more important than other human relationships. As a result, the distance felt between people with different attributes within the frame narrows. Group consciousness strengthens the feeling of one-ness.

In short, frame-based groups influence their members' thinking and ideas as well as their ways of being in the social world. With group consciousness so highly developed, there is almost no social life outside the frame. Consequently, the frame tends to become a *closed world.*

External Structure: Vertical Stratification and Closed Worlds. *Vertical stratification*, another characteristic of frame-based groups or organizations (3.a. in Table 2), is internally expressed in hierarchies and externally in demarcation of other organizations. The sense of unity amongst its personnel inhibits or paralyzes group formation based on similar attributes outside the frame, while the tendency to self-sufficiency (e.g., in-house services) within these organizations limits opportunities for members to come into contact with outsiders with other attributes.

This same separation even applies to the private lives of personnel. This can be seen among firefighters, police officers, paramedics, and specialized nurses, who often do not have regular work weeks nor can they always celebrate holidays simultaneously with their (extended) family and friends. Their participation in social clubs can also be limited. We noticed that for firefighters and military personnel, sports and recreational activities tend to occur in the company of colleagues. Consequently, friendships might often be formed around work.

It is well-known that shiftwork strains personal relationships, especially for employees living in a nuclear family with accompanying responsibilities. Although shiftwork usually allows for spending several days continuously at home, this may not always be a (sufficient) counterbalance for the strain of the work schedule. From numerous remarks made by police officers and firefighters, we can infer that relationships with partners and family/children are challenging. In interviews with firefighter chiefs, it was often mentioned that the divorce rate among firefighters is high.

This closed social world, with its lack of social connections outside the organization, in combination with a lack of universal skills, may have profound implications when professionals quit or lose their job. This is illustrated in the expression of a corporal veteran who, coming back ill (trauma-related) from his deployment, was told that his contract was not extended due to a reorganization of his division: "That hit me like a ton of bricks. My whole life was focused on the army. The army had morphed me into a soldier, but it had forgotten to morph me back into a civilian." (Document 01).

Attribute-Based Group Formation and Interpersonal Connections

Our analysis resulted in fewer of the above outlined frame-based group characteristics in the other occupational groups. Instead, we generally found more characteristics of attribute-based group formation among volunteer firefighters, nurse anesthetists, and ambulance paramedics. In these occupational groups, attributes seem to supersede the frame as the most dominant principle for group formation and interpersonal connections.

Affiliation with an Attribute: Collegial Horizontal Relations. Group formation based on attribute tends to create horizontal, *equal collegial relations* (1.a.i. and 2.a. in Table 2) with low emotional involvement in other respects. They are *internally homogeneous* (only concerning one attribute) and *externally heterogeneous* (as these affiliations are defined by other attributes) (1.a.iii. in Table 2). In general, the organization also does *not intrude into the private sphere* of the individual (1.b. in Table 2).

Universal Education and Individual Autonomy. In the Netherlands, the professional socialization of nurse anesthetists, emergency room- and intensive care unit-nurses, and paramedics takes place mainly outside the organization, in *universal educational* institutions (5.a. in Table 2). In these academies or schools, we saw that students are from different hospitals or organizations (frames) and all are taught universal knowledge and skills. Professional values, norms, and behaviors in these professions seem to trump organizational ones. The moral ideas or rules that are taught are universal rather than particular to an organization. Whereas socialization in frame-based groups typically stresses unity and solidarity (the group), we found that among nurse anesthetists and ambulance paramedics *individual autonomy* is encouraged (4.b. in Table 2). These groups seem to allow more freedom of ideas and ways of thought. Even when the structure is hierarchically similar to frame-based groups, individual autonomy is relatively well maintained.

External Structure: Horizontal Stratification and Open Worlds. Another characteristic of attribute-based group formation is that they are horizontally stratified. Internally, members are considered equal, and they have a *cooperative* attitude towards each other (2. in Table 2). Their specialization in one attribute leads to the division of labor with other organizations which specialize in other attributes. These characteristics contributes to an open eye on the world (5.b. in Table 2) and professionals in attribute-based groups seem to be generally more *mobile* and have *broad networks* (5.c. and 5.d. in Table 2). In short, when group formation is based on an attribute, the social world is more open, and others, such as civilians or patients, are (potentially) seen more akin to oneself. We can illustrate this with expressions extracted from the field notes. Ambulance paramedic: "When your mother just had a CVA, and shortly after you have to transport someone with a CVA, it hits close to home." A firefighter chief mentioned something similar about volunteer firefighters who serve in their own village: "If there is an accident, chances are that they know the victim. That hits hard."

During rides with ambulance personnel, the primary researcher observed how diverse social connections (*broad networks*) can contribute to a supportive environment: The driver/EMT instantly transitions into dialect with older patients, all of whom he seems to know. One day there was an urgent call right before their shift ended, and they were annoyed as it meant overtime. The urgent call concerned a 90-year-old with a CVA. During the drive, he explained the reason for his frustration. He was recently divorced and the children would be with him that night. He and his children had decided they would eat tater tots, their favorite, for dinner that night. When the paramedic drew blood, the EMT assisted with one hand while calling his 14-year-old daughter with the other one: "Daddy will be home late. Go to Tracy and get some French fries. I'll stop by later to pay." Afterward, he shared that the local cafeteria owner is fine with this: "She knows the circumstances."

Discussion

We found noticeable differences in the social environments of professionals working in emergency services organizations and in hospital-based emergency settings. When using Nakane's analysis of group formation and interpersonal connections as a heuristic lens, we see that social environments of military personnel, police officers, career firefighters, and perioperative nurses seem to have a more vertical social structure, that is, frame-based

group formation and interpersonal connections. Whereas the social structures of volunteer firefighters, ambulance personnel, emergency room nurses, and nurse anesthetists tend to be more horizontal (attribute-based group formations and interpersonal connections). Each structure might have its own implications for the social connections, embeddedness, and social support of the researched professionals.

In the following discussion, we contextualize these findings in the light of related theories and research literature and discuss possible implications for supportive connections in the context of trauma-related mental health risks.

Frame's Closed Social World and the Implications for Supportive Connections

We found that the military fulfills all the characteristics of a frame-based group, making it a prototypical example of a vertical social structure (see Table 2). Although group unity and solidarity are also highly valued among firefighters (Geuzinge et al., 2024), and although police officers are also characterized as isolated from society (McCartney & Parent, 2023), the military remains a unique example of an institution that demands a very high level of social integration within the organizations (Braswell & Kushner, 2012; Hatch et al., 2013). As long as professionals work and/or live in frame-based organizations, their accompanying strong social bonds can be very supportive (Geuzinge et al., 2020). A frame with this dense network of interpersonal connections in an enclosed life (Soeters, 2018) enhances an us-versus-them group consciousness (Chappell & Lanza-Kaduce, 2010; Elliott, 1986). This, in turn, may limit opportunities to develop informal relationships outside and may, therefore, offer less access to other social resources (Granovetter, 2017). Limited interpersonal connections outside the frame might be detrimental when professionals involuntarily leave their occupation, for example due to (mental) health problems. Upon leaving, they lose many, if not most, of their social connections and the accompanying access to social support. This may result in an increase in trauma-related mental health risk.

Frame-Based Occupational Group Members' Support from Supervisors

According to Nakane's criteria, the vertical superior-subordinate relationships in frame-based groups emotionally tie members to the frame (Nakane, 1998). This can be a strong source for support. Among career firefighters across Europe and among military personnel across the globe, emotional support from one's supervisor is positively related to well-being, and it may help to protect against trauma-related mental health problems (Geuzinge et al., 2020).

However, these vertical relationships may not always, in every setting, provide needed emotional support for group members (Geuzinge et al., 2024). For example, when looking at surgical teams with the lens of Nakane's concepts, we see many characteristics of a frame-based occupational group. We wonder, from our own observation and other researchers, if the emotional support from "vertical superior-subordinate relationships" helps perioperative nurses cope with potentially traumatic experiences. Backstage, in the arena which is hidden from public view (Goffman, 1954; Tanner & Timmons, 2000), it often seems the other way around and instead, nurses are a source of support for the surgeon (Tanner & Timmons, 2000). For nurses, this experience can feel like a stressful responsibility (Nestel & Kidd, 2006; Timmons & Tanner, 2005), similar to how parentified children in a kin-family can feel. Perioperative nurses sometimes spend up to 8 or 12 hr continuously one-to-one with a surgeon. Interpersonal relations, especially interactions with physicians, are the most frequently reported sources of stress for nurses (Geuzinge et al., 2020). Here, hierarchical relations and top-down communication combined with an inability to leave (rooted on the spot), fosters a setting conducive to (physician-perpetrated) abuse without consequences (Higgins & MacIntosh, 2010). This risk further increases because, as other researchers found, employees do not always self-identify as being bullied, but simply perceive bullying to be part of their job or consider complaining about bullying to be an act of disloyalty (Archer, 1999; Chipps et al., 2013; Dunn, 2003).

Frame's Disillusions and the Implications for Social Embeddedness

In frame-based occupational groups, the socialization process uses an emotional approach that facilitates a feeling of unity and "being one family." This feeling of belonging, the feeling that others "have your back," can be a powerful protective factor against (posttraumatic) stress (Geuzinge et al., 2020). However, if employees believe that blood is thicker than water, they might end up feeling disillusioned. At the end of the day, it is an occupational contract, and when obligations cannot be met, the contract will be terminated. The military is again a strong example of how this can play out for professionals working in this type of close-knit, family-like environment when they leave the frame.

Leaving the military (voluntarily or involuntarily) breaks the frame-based social ties. Service leavers may try to maintain these ties afterwards through reunions, commemorations, regimental associations, and close friendships (Hatch et al., 2013). These ties can indeed be

long-lasting for veterans who experienced heavy combat (Marini et al., 2020). However, due to the frame-based characteristics of their social network, it is likely that those social ties gradually weaken for many of them. Other researchers found that veterans who try to build up new meaningful relations with non-veterans upon leaving can be hindered by a lack of social connections outside their frame (Barnett et al., 2022; Guthrie-Gower & Wilson-Menzfeld, 2022). Service leavers, who prioritize maintaining social connections with former colleagues who are still in the frame while minimizing social participation outside the military, are more likely to report alcohol abuse, depression, anxiety, and posttraumatic stress disorder (PTSD) symptoms (Hatch et al., 2013). When their intense frame relations break up, soldiers may not only be left feeling alienated from others who have not shared their experiences and their emotions (Ahern et al., 2015) but can even feel excluded from civilian networks (Barnett et al., 2022; Flack & Kite, 2021). Veterans face the simultaneous challenges of processing their overwhelming combat experiences and the rapid loss of supportive social connections, making them increasingly vulnerable to downstream challenges (Brignone et al., 2017; LeardMann et al., 2021). Several cross-sectional studies have reported an absence of support from family, friends, and the community, as well as thwarted belongingness after deployment, to be associated with the development of PTSD symptoms (Harvey et al., 2012) and to increased suicide ideation, risk, and attempts (Berkman et al., 2000; Bryan et al., 2015). It is well known from research and clinical work that PTSD disconnects patients from others and erodes social support (Lambert et al., 2012; Taft et al., 2011; van der Velden et al., 2019). These considerations put the quote shared in this article in perspective: the quote of the corporal at the airport who had replaced his girlfriend with his platoon as his prime family.

Professionals who were socialized in a strong frame-based occupational group such as the military, may benefit from accompanying social support as long as they are in service, but may require careful preparation before leaving the occupation. A successful transition and reintegration into civilian life needs to be gradual, as it depends on time and opportunities to build sufficient social connections outside the frame, that is, developing a broad social network.

Attribute-Based Groups' Open Social Worlds of and Their Implications for Social Support

Professionals in a horizontal social structure tend to have a more open eye on the world, contributing to more widely diversified social networks than professionals in a vertical social structure. Even if those ties are weak, because they are wide-ranging and large in number, they can offer access to a broader range of resources (McGuire & Bielby, 2016). In that sense, they offer more flexibility to the individual and provide more opportunities to form and maintain supportive connections.

Existing research found, for example, amongst paramedics and volunteer firefighters, that social support preferably arises from extra-occupational sources, such as family, friends, and the community (Donnelly et al., 2016; Huynh et al., 2013). Volunteer firefighters' social resources from their broader family domain help to reduce the psychological impact of their work (Huynh et al., 2013). Other studies, primarily among firefighters, emphasized the crucial role of partners' support for volunteers in emergency service work (Cowlishaw et al., 2010). This is in line with Pearlin's general finding that support is associated with integration into various social institutions and contexts (Aneshensel, 2010).

Thus, professionals in more attribute-based occupational groups with diverse potential supportive connections seem less vulnerable for trauma-related mental health problems than those in typical frame-based occupational groups. This is because loss of supportive connections in one social domain can be compensated for in another.

Frame Versus Attribute Ambiguity in Relation to the Social Consciousness of Professionals

Police Embedded in Society: Friend or Foe?. We found that the police meet the criterium of a frame-based group formation. However, when we look at the data, we also notice inconsistencies concerning the way police officers relate to their social environment. Police officers stand and operate amid society. The Dutch police force used to require officers to live in the same location where they patrol. This way a police officer would build on relationships in their area. This apparently open social world is illustrated with a slogan from the 1970s until the second half of the 1990s: "*The police is your best friend*" (van der Velden et al., 2014). However, since the mid-90s, the rule of living and working in the same area seems to have been abandoned. During the fieldwork, the researcher did not encounter any police officers who lived in the same area as they patrolled. This fits studies from other countries which show that, among police officers, a frame-based group consciousness of "us" against "them," that is, the police versus the civilians develops (Chappell & Lanza-Kaduce, 2010; Johnson et al., 2005). This inconsistency might confuse officers themselves and the general public outside of the police frame. Additionally, when police officers do not perceive support from the general public for doing their job, but instead perceive disrespect instead, officers' stress levels may increase

(Morash et al., 2008). This may have a spiral effect, for threats, especially from outside, would strengthen esprit de corps, instilling an even stronger "us-versus-them" mentality (Elliott, 1986).

Perioperative Nurses Embedded in the Operating Room: Front Stage Versus Backstage?. From an outsider's perspective, we all assume that operating teams function as homogenous and unitary teams. We found that backstage, operating team members' experiences appear not to confirm this assumption. Other researchers in this field found that team members did not agree, whether they work as a single team or as multiple teams. Nurses perceive all operating team professionals as one unit working as a single team (Riley & Manias, 2006). In contrast, physicians (surgeons and anesthetists) perceive the operating team as comprising of several highly specialized subteams (nursing, anesthetist, and surgical), which all function as a single unit (Undre et al., 2006). It is interesting to note that, according to Nakane's concepts, the perioperative nurses seem to perceive operating teams to be one frame, whereas surgeons consider themselves to be a member of an attribute-based occupational group.

Our research findings suggest that perioperative nurses show different characteristics of group formation than nurse anesthetists. This might explain why perioperative nurses are often set apart from other nursing specializations (McGarry et al., 2018), which are primarily attribute-based. These findings might also explain the frequent intraoperative conflicts (Silen-Lipponen et al., 2004) and communication problems (Wauben et al., 2011) between team members. When we look at our findings from Goffman's perspective, we might hypothesize that frontstage perioperative nurses appear to be an attribute-based occupational group, whereas backstage, they experience themselves to be a member of a frame, that is, the surgical team. This inconsistency found among perioperative nurses can, just as the inconsistency among police officers, be explained by the sharp difference between back- and frontstage. It may be a valuable research topic to examine if these inconsistencies (frame vs. attribute and back- vs. frontstage) might relate to differences in experiences of potentially traumatic events.

Conclusions

This research showed that the military is a prototypical example of group formation and interpersonal connections based on a frame, with a clear vertical social structure in the social environment. We also found many of these characteristics in police organizations, and among career firefighters, and perioperative nurses. Occupational group formation with a strong weighting on frame, limits opportunities to develop potential supportive interpersonal connections outside the frame. This may not be crucial, as long as supportive connections can be found within the frame, especially with superiors, for then there is ample opportunity for others to facilitate adaptive coping and help process overwhelming experiences. However, when professionals leave their occupation, their major protective factor against posttraumatic stress disorder might be lost, which may increase the risk of related mental health problems such as problematic alcohol use, depression, or suicidal ideation. That is why it may be recommendable, upon leaving the occupational group and upon reintegration into civilian life, to address time and opportunities to build a broad social network outside the frame, that is, outside the organization.

In contrast, volunteer firefighters, ambulance paramedics, nurse anesthetists, and emergency nurses form groups and interpersonal connections based on attributes, which due to their horizontal social structure, extend widely within their social environment. They tend to have more diversified social networks that offer access to a broader range of resources to help them deal with potentially traumatic events.

Limitations

This research involved observing organizations and interviewing professionals in the Netherlands, limiting the extent to which the findings may be relevant to other countries. Particularly, the occupation of "surgical assistants" and their integration in the surgical team seems to be rather unique to the Netherlands (McGarvey et al., 2000), with the exception of England (Timmons & Tanner, 2004). Perioperative nurses in other countries might not show as many characteristics of frame-based group formation and interpersonal connections as those who participated in this research. However, we hope that the transparency of our analysis might increase the transferability of the findings (Barnes et al., 2021).

Additionally, for practical reasons, we chose not to observe deployed military personnel, which might also limit the generalizations of the findings. However, several scholars of the military argue that military communities have similar basic social arrangements across cultures and throughout modern history (Braswell & Kushner, 2012), and, as shown in the discussion, other research findings from countries across the globe showed many similarities to our findings.

Finally, using Nakane's concepts, which offer an almost ready-made categorizing scheme, may carry the risk stereotyping when used deductively. That is why we instead used these concepts as a heuristic (interpretive) lens, which differs from mere deduction, or in this case scoring on criteria. Nevertheless, we have constantly been aware that the primary concern in our analysis is

only the relative degree to which each criterion functions in the social environment of various professionals. What matters is the weighting of frame versus attribute in the formation of an occupational group. In this context, it is noteworthy that intensive care nurses involved in this research show as many characteristics of frame-based group formation as of attribute-based group formation. With these precautions in mind, it seems to us, as shown in our discussion, that the criteria of Nakane's group formation and interpersonal connections proved useful and may have reduced some of the complexities of the field and clarified contradictions in earlier research.

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Data Availability Statement

Owing to the nature of this research, the participants of this study did not agree for their data to be shared publicly.

Supplemental Material

Supplemental material for this article is available online.

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