АКТУАЛНО
CURRENT TOPICS

COMMUNICATION AND INFORMATION PROCESSES AS A FACTOR FOR INCREASING JOB SATISFACTION IN THE EMERGENCY MEDICAL SERVICES

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Abstract: *Staff shortages, high turnover, and heavy workloads have a significant impact on the daily work of paramedics in Germany. At the same time, there is still uncertainty regarding the factors influencing the independent performance of medical procedures. Control by the medical director of the emergency medical services (ÄLRD) is particularly important for the structuring of powers of action. The extent to which this authority structure is important for job satisfaction in the emergency medical services and how it is communicated in practice was investigated using a mixed-methods research design based on guided expert interviews. The research project also provides insights into the job-specific influences on the job satisfaction of paramedics in order to contribute to professionalized human resource management and effective communication processes. The results of the research project showed that autonomy is very relevant to job satisfaction and that two different constructions of reality are hidden between the power of the labor market and the power of the ÄRLD. Suggestions for improving communication processes are made.*
Keywords: *job satisfaction; paramedics; skills shortage; human resource risk management; information management*

INTRODUCTION

The emergency medical services are also severely threatened by the shortage of skilled workers in the healthcare sector (PWC 2022). Staff turnover, combined with an already existing shortage of personnel, can develop into a very critical personnel risk for emergency medical services, which can then reach the limits of their capacity. The job satisfaction of emergency paramedics is particularly relevant in this context, as job satisfaction has been empirically linked to significant personnel risks. These include staff retention as the opposite of turnover (Chang et al. 2009; Fried et al. 2008; Jiang et al. 2012; Singh 2019), but also work performance (Jiang et al. 2012) and employee health (Faragher et al. 2005). In short, satisfied professionals are more likely to stay with their organisations, tend to perform better and have fewer health-related absences. Job satisfaction can therefore be regarded as a key control variable for human resource risks and an important contributor to occupational health management.

For successful human resource management in emergency medical services, the question therefore arises as to how the job satisfaction of emergency paramedics can be positively influenced. The meta-analytically based Job Characteristics Model emphasises the effect of autonomy (Kanning 2017), so that this variable and the way how autonomy is communicated and negotiated was placed at the centre of the dissertation research project.

From an information science perspective, it was of central interest to examine information in communication and negotiation as an expression of power structures (Hobohm 2022). The dualism of information science between realism and constructivism, moves within the field of tension that, according to the paradigm of realism, there is an objective reality, while constructivism envisages a social construction of reality and thus encompasses deviations from the respective reality (Hobohm 2022). Through the constructivist perspective of reality as a construction of reality and information as a manifestation of power structures, it could therefore be possible in the research project to trace the divergent construction of reality by the medical management (all decision-making power belongs to them) as a contrast to the construction of

reality by the personnel market (a shortage of skilled workers is causing a shift in power towards skilled workers). This could provide valuable insights into how communication processes could be improved.

To explore potential areas for improvement, it is helpful to first establish a basic understanding of communication as an exchange of information. Communication can be understood as an active process of information exchange (Zdravkovska and Haque 2023). The literature offers perspectives that view information and communication as paired categories or, more specifically, limit information processes to transmission, while communicative processes focus on meaning-making, social regulation, and goals (Pavlova and Paliy 2020; Zdravkovska and Haque 2023). Regardless of this distinction, the information process can be regarded as the foundation of communication due to its transmission function.

Of interest regarding the communicative possibilities in this context is how the flow of communication takes place. Flow models differ in terms of whether communication is linear – that is, one-way from sender to receiver – whether it is reciprocal (circular), or whether it takes place within a complex network (Chew and Ng 2021). Therefore, the following basic types of flow models can be distinguished (Beskaravainaya and Kharybina 2024; Chew and Ng 2021; Kumar and Sinha 2021):

– Linear models focus on information that flows one-way from the sender to the receiver, i.e., unidirectionally.

– Circular models represent interactivity, as they already incorporate feedback and operate in loops.

– Ecological models view all actors simultaneously as both senders and receivers operating within a dynamic system.

– Network and diffusion models enable an analysis of information dissemination between different nodes and are based on the perspective of many-to-many communication.

It becomes apparent that a linear process allows the sender to transmit information but does not provide for a response from the recipient. Only at the level of circular communication is an exchange possible that connects the constructed realities with one another.

Healthcare systems often focus on linear information flow (Johnson et al. 2024). The reasons for this can be seen, on the one hand, in the fact that healthcare organizations are often conceived as input-throughput-output machines; however, hierarchically structured perspectives also contribute to this (e.g., top-down communication from physicians to healthcare staff or a hierarchical, paternalistic model of the doctor-patient relationship) (Manojlovich et al. 2015; Shopnikolova 2025). It is also necessary to consider the numerous medical safety protocols for healthcare systems, which attribute errors primarily to missing information in documentation and aim to prevent them through a standardized, one-way transfer process (McCarthy et al. 2025).

In communication, this can become a problem, as efficiency is often already hindered by unanticipated response options, and no dialogical engagement can take place that would facilitate a shared understanding of meaning (Dartiguelongue and Cafiero 2021; Tu et al. 2024). A reduction to linear communication processes can thus be understood as an obstacle to learning health systems (Tu et al. 2024).

From a constructivist perspective, this can be conceived as fostering diverse realities. These realities will be examined through the lens of personnel decision-makers in emergency medical services in order to develop recommendations for improving communication based on these findings.

RESEARCH METHODOLOGY

The aim of the study is to examine for decision-makers in the emergency medical services in Germany whether and to what extent the autonomous freedom of action of employed paramedics within the meaning of Section 2a of the Paramedics Act (NotSanG) and the advance delegation of tasks contributes to employee satisfaction. This would attribute potential to freedom of action for coping with scarce human resources.

Using a mixed methods approach, eight decision-makers at management level (as district man-

agers, managing directors or management assistants) from rescue services in Baden-Württemberg were surveyed in Germany about the possible impact of authorisations on the job satisfaction of emergency paramedics. Based on their work and other characteristics common to the sample, such as involvement in personnel decisions, many years of personal experience in operational emergency services and their own professional qualifications as emergency paramedics, it was assumed that the sample had adequate expertise on the subject.

The qualitative data was evaluated using content analysis according to Mayring (Mayring and Fenzl 2019) and was supported by the QCAmap software to ensure compliance with the procedural rules. Due to the small sample size, the quantitative data could only be evaluated descriptively.

Limitations of the study must of course be considered in view of its design as pilot research (small, non-representative sample size and a qualitative research design focus).

RESULTS

The quantitative data initially showed that there are still emergency services (25%) that do not grant authorisation for more autnomomy despite the possibilities offered by Section 2a NotSanG. In 37.5% of cases, authorisation was granted in accordance with the standard instructions for Baden-Württemberg. 50% comminicated authorisation beyond this with the employees. However, the data revealed a significantly more restrictive situation with regard to the release of anaesthetics: 75% stated that the ÄLRD does not grant the possible autonomy of action for anaesthetics in their rescue area. This indicates clear restrictions that may limit pain management in emergency rescue services.

In order to investigate the extent to which approvals could actually be implemented in practice, questions were asked about equipment, medication and material enabling. The sample already showed extensive availability in many areas: 100% reported that a ventilator with CPAP function was available, as well as material for endotracheal intubation. However, only 25% reported having an ultrasound device in their ambulance. Seven of the eight interviewees confirmed that the materials and medications required for approved EVM were available.

In order to determine how the necessary medical expertise is transferred and monitored within the framework of quality assurance, organisational practices were examined: Annual reviews are intended to ensure knowledge of advanced care measures in the emergency department, which was the case in 87.5% of the cases examined. 75% of respondents stated that approvals are updated and adapted at least once a year. 12.5% also did this, but at longer intervals (2–5 years). In this highly patient-relevant field of activity, there has already been a fairly comprehensive development in terms of keeping the relevant skills of emergency paramedics up to date, which should, of course, always be accompanied by targeted practical monitoring.

The extent to which there are potential consequences under labour law if independent and medically acceptable emergency care is actually provided was also investigated. It was found that 87.5% did not expect any negative consequences and 0% expected to be dismissed as a result. However, despite providing medically acceptable emergency care in accordance with the law, 12.5% indicated that they were facing a warning. This indicates that, despite Section 2a of the NotSanG, there is still a risk of negative consequences under labour law in professional practice in Baden-Württemberg.

These working conditions are compounded by a drastic shortage of personnel in the sample: 100% of respondents rated staff turnover in their rescue stations as high, with it already impossible to fill all planned positions: 25% were only able to fill between 60–70% of their positions, while a further 37.5% of respondents were only able to fill 80–90% or <90%. All respondents agreed that there was high recruitment pressure.

As part of the qualitative content analysis, the development of the emergency paramedic profession over the last ten years was first examined: The dominant category identified was a conflict between training and reality:

“The new NFS are trained in three years for scenarios that only occur in a very small percentage of daily cases (= disappointment). Actions are sometimes carried out strictly according to

SAA and prescribed guidelines rather than based on perception, observation, consideration and the patient's needs." (Interview 6-M)

"Due to the difference between reality (often without NA in action and a high number of non-emergencies) and training (trained for the worst case), there is a need for reform in the current training." (Interview 8-S)

"At the same time, this level of training leads to an ever-widening gap between school and real life. This increases frustration among employees." (Interview 4-D)

The conflict with the Heilpraktikergesetz (German law regulating alternative medicine) and a possible extension and the importance of expanded care measures for a broader range of activities were also mentioned in connection with the development of the job profile:

"Unfortunately, the measures that were actually desired were not correctly incorporated into law, so emergency paramedics still come up against limitations under the Alternative Medical Practitioners Act and risk penalties." (Interview 2-B)

"This change was accompanied by the introduction of emergency paramedics, who, even after completing a full examination/state supplementary examination, were not allowed to perform any extended measures for many years. With the implementation of the extended care measures, including annual reviews and advance delegation in Baden-Württemberg, the range of activities has been significantly expanded." (Interview 3-B)

It was also pointed out that the job description of doctors and their associations is being curtailed.

When asked about their own position on medical measures, 7 out of 8 respondents rated them positively. Only one of the participants rejected them due to legal concerns and worries about compensation for damages.

The data revealed very different perspectives on how an expansion of freedom in the implementation of healing measures in one's own area of responsibility would affect the profession: Increased job satisfaction and staff retention were among the responses, as was a possible increase in employer attractiveness:

"Employee satisfaction would increase, as would the length of time they stay in their jobs. Only those who are allowed to do what they have learned and are good at will be satisfied with what they do." (Interview 1-B)

At the same time, however, there were also considerations that this was not necessary due to the insufficient implementation of existing options or that the extended care measures were already generous. It was also emphasised that legal adjustments are important and that consideration should be given to the extent to which all emergency paramedics really attach great importance to this, as the motivational effect could be limited and to what extent this is significant due to the parallel alerting of the emergency doctor.

In contrast to the extension of authorisations, respondents were also asked about their expectations if the freedom were to be abolished instead. It was precisely at this point that the survey data highlighted the link between authorisations, personnel risks and job satisfaction:

"This would certainly be frustrating for all former Ras and all NFS." (Interview 6-M)

"That would certainly send a fatal signal to many emergency paramedics and would undoubtedly lead to many of them seeking new careers outside the emergency services." (Interview 3-B)

"In the border region with Switzerland where we are located, this would result in a massive exodus of dedicated NFS staff. It would also lead to people moving to other professions." (Interview 8-S)

"Maintaining operating hours would no longer be possible in the NFR due to the threat of staff shortages." (Interview 8-S)

"Decline in quality" (Interview 6-M)

Only one of the interviewees assumed that there would be "no impact" (I2-B) if the freedom were to be removed. However, this was the interviewee who rejected the approvals due to the risks involved. This justifies considering the extent to which his area of responsibility would actually undergo any practical changes if it were to be abolished, if a distinction is to be made between opportunities not granted and opportunities abolished.

However, the research project provided numerous other insights into the positive and negative influences on the job satisfaction of emergency paramedics: In addition to job opportunities and expanded care measures, other autonomy characteristics such as freedom of decision-making and greater responsibility were also mentioned as positive factors. The need for autonomy among emergency paramedics was also significant in terms of shift planning and working hours, in order to better adapt these to their needs. In practice, this is difficult to achieve under the prevailing conditions of staff shortages, but if the available options are exploited to the full, it can make a very important contribution to job satisfaction, and thus to staff retention and ultimately to greater employer attractiveness. Considering the situation in the labor market, it is striking how little the communication potential of this professional group has been tapped to address such needs. Expressions of appreciation and incentives were also mentioned as positive factors, with an easy-to-implement fruit basket being cited as a frequent example. In terms of appreciation, support for staff and leadership were also identified as positive influences.

The data also indicated that areas of responsibility and equipment are relevant factors for satisfaction. In the data set, the categories of duty roster/working time management and equipment were the most frequently cited positive influences.

Remuneration as a positive influencing factor also pointed to a traditional starting point for satisfaction. However, the data also showed that improved control and interface management were structural factors contributing to positive job satisfaction.

For professional human resources management that strives to manage personnel risks, numerous starting points are thus identified, of which at least those that are feasible in practice can be pursued in the best possible way.

When it came to negative influences on job satisfaction, there was consensus that staff shortages and interface overload were significant factors. However, unnecessary call-outs were also mentioned frequently in the interviews. In addition to classic negative factors such as limited development opportunities, low social status, the working atmosphere and corporate culture, the importance of equipment was also highlighted here. The rescue station was also a factor: it should be noted that paramedics spend a lot of time there. Restrictive measures in the federal state and the medical on-call service were also cited as factors contributing to dissatisfaction, as were fears about expectations regarding medical measures.

CONCLUSIONS

Overall, the research project revealed serious personnel risks in the emergency medical services, which in many areas are also affected by health policy and legal factors and are therefore partially beyond the control of the emergency medical services themselves. When considering information as a manifestation of power (Hobohm 2022), the research results showed that medical management currently often still adheres to a restrictive demonstration of power as their own construction of reality, which contrasts with realityconstruction of the power relations among staff due to the shortage of skilled workers.

However, the research results also showed that emergency services have some potential for action to differentiate themselves positively as employers, become more successful in competing for personnel and reduce their personnel risks as far as possible within the scope of their capabilities. The design of the approvals can be seen as an important tool for emergency services in Germany to increase job satisfaction, retain staff and counteract the shortage of skilled workers in the German healthcare system.

The question of how to mediate between the reality constructs of medical management and the personnel market appears relevant. Improving communication could serve as an important starting point. When examining information flow models that focus on how information flows through systems or organizations, it becomes clear that no regular communication regarding staff concerns is planned between the medical management of the emergency medical services and the staff. Their communication processes occur primarily on an ad hoc basis. Occasion-based communication is largely initiated by the medical management or is structurally provided for in the form of com-

petency assessments. Staff needs and staff dissatisfaction have not yet been considered a formal occasion, nor is it typical for employees to initiate communication processes.

With regard to staff interests, what stands out in terms of the flow models is that these are not even intended as linear communication from staff to the Medical Management. The communication processes are thus still far from being circular. Therefore, when identifying opportunities for improvement, it is essential to establish an ongoing exchange regarding the staffing situation and staffing needs between human resources management, the staff, and medical management, in which all stakeholders can communicate on an equal footing. This can be seen as a significant step toward countering paternalistic mindsets in favor of effective communication.

Nevertheless, it should be noted that this pilot research project is only the beginning of the investigation of job satisfaction and autonomy in the German emergency medical services. In particular, quantitative research on larger nationwide samples can be considered desirable. Regression models should also be used to identify correlations between significant variables and their moderator variables. This would make a key contribution to the management of emergency services by enabling them to reflect on the impact of decisions in advance. In the same way, the establishment of new communication models is a pilot project that makes it possible to develop successful practical examples for emergency services.

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КОМУНИКАЦИОННИТЕ И ИНФОРМАЦИОННИТЕ ПРОЦЕСИ КАТО ФАКТОР ЗА ПОВИШАВАНЕ НА УДОВЛЕТВОРЕНОСТТА ОТ РАБОТАТА В СЛУЖБИТЕ ЗА СПЕШНА МЕДИЦИНСКА ПОМОЩ

Резюме: *Недостигът на персонал, високото текучество и голямата натовареност оказват значително влияние върху ежедневната работа на парамедиците в Германия. В същото време все още съществува несигурност относно факторите, влияещи върху самостоятелното изпълнение на медицинските процедури. Контролът от страна на медицинския директор на спешните медицински служби (ÄLRD) е особено важен за структурирането на правомощията за действие. Степента, в която тази структура на властта е важна за удовлетвореността от работата в спешните медицински служби, и това как тя се комуникира на практика, бяха проучени чрез изследователски дизайн със смесени методи, базиран на насочени експертни интервюта. Изследователският проект също така предоставя информация за специфичните за работата фактори, влияещи върху удовлетвореността от работата на парамедиците, с цел да допринесе за професионализирано управление на човешките ресурси и ефективни комуникационни процеси. Резултатите от изследователския проект показаха, че автономността е много важна за удовлетвореността от работата и че между властта на пазара на труда и властта на ÄRLD се крият две различни конструкции на реалността. Предложени са препоръки за подобряване на комуникационните процеси.*
Ключови думи: *удовлетвореност от работата; парамедици; недостиг на квалифицирани кадри; управление на риска в сферата на човешките ресурси; управление на информацията*

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