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ORIGINAL PAPER

So many negatives, but it still has meaning: a mixed-design cross-sectional study reflecting health professionals' perceptions of the Slovak health system

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Abstract

Aim: The aim of the study was to analyze healthcare workers' perceptions of the Slovak health system. *Design:* We conducted a mixed-design cross-sectional study that combined qualitative and quantitative analyses. *Methods:* We collected 269 associations with the cue word "health system" from 91 health workers (30 medical doctors, 30 nurses, and 31 paramedics) to access social representations of the studied phenomenon. After establishing the final list of categories, we calculated frequencies and proportions, and also conducted a network analysis of associations. *Results:* We identified 13 main categories, of which 53.5% had a neutral emotional charge, 38% carried a negative charge, and only 4% indicated a positive charge. The most saturated category was the Meaning of work (20.8%), followed by Negative general perceptions (14.9%), which was also the most central category. The strongest point of connection between neutral and negative categories in network analysis was between Negative general perception and the Meaning of work. *Conclusion:* Our study revealed that negatively valenced associations about the system were numerous and dominant. Despite this fact, health workers still perceived their job to be meaningful, which is one of the possible explanations for their staying in a system perceived to be dysfunctional.

Keywords: free association method, medical doctors, nurses, public health, social representations.

Introduction

The number of studies that focus on perceptions of the quality of health systems is growing (Stepurko et al., 2016). Nevertheless, these studies focus mainly on the perspective of patients consuming health services (e.g., Cosma et al., 2020; Mihailovic et al., 2017; Sofaer & Firminger, 2005; Stepurko et al., 2016). Although we appreciate the interest in satisfaction with health services, patients can merely assess what they experience as consumers from "outside". Hence, we point to the need to examine the health system also from the inside, through health professionals. Some previous research has focused on health workers and their perception of particular safety initiatives (Reidy et al., 2020), their perception of quality in primary health care (Papp et al., 2014), or safety culture (Pronovost et al., 2003). However, we believe that global perceptions of health systems in specific countries is under studied. Since "[health]workers are people whose job it is to protect and improve the health of their communities" (World Heatlh Organization, 2006), we consider it crucial to focus on their perceptions and insights, which are often neglected.

Perceptions of health workers of the health system are valuable for various reasons. First, their perceptions of the health system are a vital indicator of healthcare quality. Second, the knowledge and experience of health workers are valuable resources that might contribute to adequate and appropriate interventions for developing and promoting a better and safer health system (Aveling et al., 2015). Third, and most importantly, health professionals provide first-hand information about deficiencies that underlie hazards in the health system (Pronovost et al., 2003). In addition, since health workers play essential roles in the quality of health services, perceived dissatisfaction or distress caused by underperforming health systems impact not only health workers but also patients and health organizations (Simone, 2015). Therefore, our current

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study focuses on health professionals and their perceptions of the Slovak health system since they are the cornerstones and "mirrors" of how well health systems are functioning.

The health system in Slovakia

The universal health coverage system in Slovakia is based on compulsory health insurance with a basic benefits package provided by competing health insurance companies, selective contracting of healthcare providers, and flexible pricing of health services (Smatana et al., 2016). Health care (with exceptions) is provided free to insured inhabitants (Szalay et al., 2011). However, despite some improvements in recent years, Slovakia lags behind the European Union (EU) and Organization for Economic Co-operation and Development (OECD) average in specific indicators, such as effectiveness. For example, an analysis by Filko et al. (2012) showed that Slovakia was one of the worst-performing developed countries in healthcare efficiency. Unfortunately, similar results were obtained several years later by the OECD (2021), in which healthcare efficiency fell below average.

The OECD (2021) analysis also showed other severe issues that endanger the functioning of the Slovak healthcare system. The first is understaffing – a typical issue in many health systems. Although the number of Slovak medical doctors was the same as the OECD average (3.6 doctors per 1,000 inhabitants), the number of nurses was far below the OECD average (5.7 nurses per 1,000 inhabitants in Slovakia compared to the 8.8 OECD average). Slovakia already has a shortage of almost 15 thousand nurses in the health system, and this shortage has been underlined by the mass exodus of almost 800 nurses due to the chaotic management of the coronavirus pandemic in 2021 (Lazorová & Kober, 2021). Moreover, almost a fifth of all Slovak nurses are over 60 years old, and thus, may choose to leave for early retirement (Lazorová & Kober, 2021). Without much exaggeration, this outflow might cause a collapse of health care.

Nevertheless, a lack of healthcare professionals is usually not the only problem in the health system. The second serious issue lies in the significant underfunding of the Slovak health system by the local government, which seems to be an ongoing problem. Although Slovakia increased health system funding in 2020 to 7.7% of gross domestic product, this is still far below the EU average. For example, the Czech Republic earmarked 9.1% of its gross domestic product for health care in 2020 (OECD, 2021). These deficiencies result in poor medical technologies and facilities, regional differences in the use of medical equipment, and also affect the salaries of health workers and their decision to migrate abroad (Gavurová et al., 2017). In addition to their impact on health workers, Slovak health system deficiencies are associated with low levels of patient satisfaction with local healthcare (Sopóci & Hrabovská, 2015).

Overall, we can conclude that besides underfunding and lack of health workers, the Slovak health system must deal with many problems (OECD, 2021) that might have psychological consequences affecting the attractiveness of the health professions. For example, a low reputation presumably reduces the attractiveness of the health professions and leads to even higher shortages in the workforce (Deniz, 2020). The job satisfaction and organizational commitment of health workers are also affected by external factors such as low salaries, understaffing, work overload, or equipment quality (Al Maqbali, 2015; Vagharseyyedin, 2016). As a result, new prospective health professionals, discouraged by the present conditions, might look for employment in other countries or consider a move to a different occupation. Eventually, with its aging workforce, the Slovak health system might end up with a perilous health workforce shortage.

The theory of social representations

Social representations are often used as means to study phenomena in the area of health care (e.g., Bastias et al., 2020; Flick et al., 2002). Specifically, the theory of social representations, mostly promoted by Moscovici (1961), is an approach to social psychological aspects that brings the unknown to the surface. Social representations consist of organized patterns of thinking, attitudes, information, or emotions that, when collectively concerned, construct a social object (Wagner et al., 1996). More simply, it is a way of thinking shared among the members of reflexive groups.

This collective side can only be understood by considering the socially determined individual experiences and preferences. On the other hand, and simultaneously, the concomitant level of institutional structures is irreducible only to individuals (Gaymard & Cazenave, 2018). Thereby, social representations diminish differences between individuals and groups. They help to evoke communication in communities and create a system for easier orientation in specific social situations. In addition, we preferred to study social representations over attitudes of health workers since instead of telling us just how much an examined phenomenon is liked or disliked, social

representations reveal how this phenomenon is specifically represented in the minds of a social group (Lášticová, 2002). In this case, we focused on a specific social group – health professionals. To reveal their social representations of the Slovak health system, we used the time-effective method of free association.

Aim

The current study aimed to create a meaningful mosaic of how the Slovak health system is perceived by collecting and identifying the most frequent social representations of Slovak health professionals – medical doctors, nurses, and paramedics. In addition, we wanted to compare social representations among the three health professionals to observe whether any significant differences existed in their perceptions of the Slovak health system. Finally, to get a more complex picture of the studied phenomenon, we aimed to zoom in on the relations between social representations via visual network analysis. The final picture could provide a useful starting point for changes that might lead to the amelioration of (or at least the stabilization of) the problematic situation among Slovak health professionals.

Methods

Design

Our previous research experience with health professionals has shown that their willingness to cooperate in research is low for various reasons – whether they be lack of time, other administrative tasks, or simply fatigue. Therefore, we considered options for addressing health professionals without adding an excessive burden in the form of long questionnaires or interviews. To prevent Slovak health professionals from further exhaustion, we opted for a mixed-design cross-sectional study using the method of free association which provides a quick exploration of current social representations (Schieber & Court, 2016). To achieve a more complex view of the studied phenomenon, we used a mixed-design study that combined qualitative and quantitative methods. Thus, we supplemented the content analysis of free association with visual network analysis, thanks to which we could observe relations among created categories (Decuypere, 2019). We then proceeded with descriptive and inferential analyses, in which we compared frequencies of categorized associations among the participating health professionals. To ensure the qualitative standards of the study, we followed the Standards for Reporting Qualitative Research (SRQR; O'Brien et al., 2014) guidelines.

Sample

Since we targeted specific health professionals that were not easy to reach, we set the sample size according to a rule of thumb of at least 30 respondents from the three Slovak health professions – medical doctors, nurses, and paramedics. Despite the brevity of the questionnaire, we collected data for over two months via the snowball method. We also made use of social networks, sharing the online questionnaire with groups created for networking between the chosen health professionals. Eventually, we received responses from 91 participants (women = 63%), 30 medical doctors (women = 73%, $mean_{(age)}$ = 47), 30 nurses (women = 80%, $mean_{(age)}$ = 41), and 31 paramedics (women = 35%, $mean_{(age)}$ = 31). The health workers came from all Slovak regions, but were predominantly from Central (n = 38) and Western Slovakia (n = 36). Their total age varied from 20 to 79 years (mean = 39.4; SD = 12.8). Years of experience ranged from 0 to 59 years (mean = 16.4; SD = 13.1). Since all the participants agreed to the research conditions and completed the tasks, none were excluded. Participation in the research was voluntary, anonymous, and without financial remuneration.

Data collection

We collected the data via an online survey created using the platform Qualtrics XM at the end of the year 2019. Therefore, the data were not affected by the Coronavirus pandemic. After agreeing to the terms and conditions, participants answered several socio-demographic questions (e.g., job position, age, years of experience). Next, participants were instructed to write the first word that came to their mind when a cue word was presented on a screen. We used five cue terms – patient, medical doctor, nurse, paramedic, and health system. Each of the cue terms appeared to participants three times in random order. Thus, participants created 15 associations – three associations for each cue term. After the last word, the survey was terminated, and the collected data were safely stored in the Qualtrics XM servers. Further analyses for the current study focused only on free associations created in response to the cue words "health system" (in Slovak "zdravotníctvo").

Data analysis

We collected 272 free associations in response to the cue term "health system". During the data cleaning process, we excluded three free associations because they were not in line with the instructions.

Then, following the basic tenets of content analysis, two authors of the study jointly categorized and recategorized 269 associations generated by respondents (Elo & Kyngäs, 2008). Consequently, the authors created a coding sheet with a list of categories and their definitions. Each association was attributed to an initial category in the first round of coding. In the next step, the authors looked for similarities and differences between the meanings of associations and refined the categories. The categories that contained only a few associations (i.e., five or fewer associations) were merged into more complex groups if possible. In general, however, we aimed to strike a balance between the abstractness and concreteness of categories. Besides the meanings of specific associations, we also analyzed the emotional valence of the given words.

Afterwards, the coding sheet and the raw uncategorized data were given to the third author, who served as a secondary rater to assess the reliability of the previous coding. The mutual agreement was 94.05%, and Cohen's kappa index reached very satisfactory levels ($\kappa = 0.92$). All three authors then discussed points of disagreement and circumstances that could have led to biased evaluation. In particular, since all three authors live and work in Slovakia, they might have been affected by the overall negative image of the Slovak health system. As a result, we double-checked the emotional valence of assessed associations. In the event of any discrepancies, we proceeded to a consensual agreement. We also used the Chi-square test and Z-test for statistical comparisons of category frequencies among the three groups of health workers – medical doctors, nurses, and paramedics. Therefore, we calculated the test value (χ^2 = Chi-squared test value; Z = Z-test value), statistical significance (p-value, which must be below 0.05 for difference between groups to be significant), and corresponding effect size values that determine magnitude of the difference (V = Cramer's V, which is effect size measure for Chi-squared test; h = Hedge's h, which is effect size measure for Z-test). This was done via Jamovi software.

Eventually, we proceeded with visual network analysis using Gephi software. A Gephi network provides analytical tools for mathematical structures called graphs or networks, which model pairwise relationships (referred to as edges in graph theory) among objects called nodes (see Newman, 2010). Network analysis can be applied in qualitative or mixed-method research since it visualizes and quantifies relationships between categories. In the present study, we modeled relationships among categories of associations based on their co-occurrence in the individual participant answer sheets. A graph was produced that was undirected, meaning that the order of nodes in a pair is not important. We used ForceAtlas2 and Expansion algorithms to draw the graph, in which three centrality measures are taken into account – closeness, betweenness, and eigenvector. Closeness centrality refers to the average length of the shortest path (i.e., the number of nodes) between the node and other nodes in the graph. Betweenness centrality is based on how often the node occurs on the shortest path between pairs of other nodes. Finally, eigenvector centrality reflects the relative influence of a node in a graph based on connections to other significant nodes (calculated by degree centrality – the sum of direct links to other nodes).

All three researchers had experience with different types of qualitative research. In the past years, two of the researchers conducted several studies focusing on paramedics. From the specific qualitative methods, they used observation, semi-structured interviews, or associations. While collecting the data, the participants knew the names of the researchers, and some of the participants might have known the researchers personally. However, the data collection was anonymous and online. Therefore, we can rule out any potential biased responses or data manipulation caused by personal relationships. On the other hand, the researchers were aware of the negative image of the Slovak health services and health system. This might have played a role in data analysis, particularly when the researchers evaluated associations based on their emotional valence. We believe that we minimized this effect through careful discussion of the specific associations.

Ethical review and approval were not required for the study on human participants in accordance with the local legislation and institutional requirements. All participants were informed about the terms, conditions, and procedures of the study in the informed consent at the beginning of the survey. Their participation was voluntary, anonymous, and could be terminated at any time.

Results

Our analysis produced 13 categories that we classified into three superordinate categories based on their emotional valence – positive, neutral, and negative. Only two categories, which also happened to be among the least frequent – appreciation and optimism – were identified as positive (n = 11; 4.1%). The categories – Finances;

Politics; System and system institutions; Healthcare workers; Job challenges; and Meaning of work – were assigned a neutral emotional valence (n = 144; 53.5%). Negative perception; Healthcare system deficiencies; Disorganization; Lack of material resources; and Need for change were classified as negative (n = 101; 37.6%). Several associations with unclear meaning were assigned to the category Undefined (n = 13; 4.8%). A list of all categories with brief definitions, examples, and frequencies is presented in Table 1.

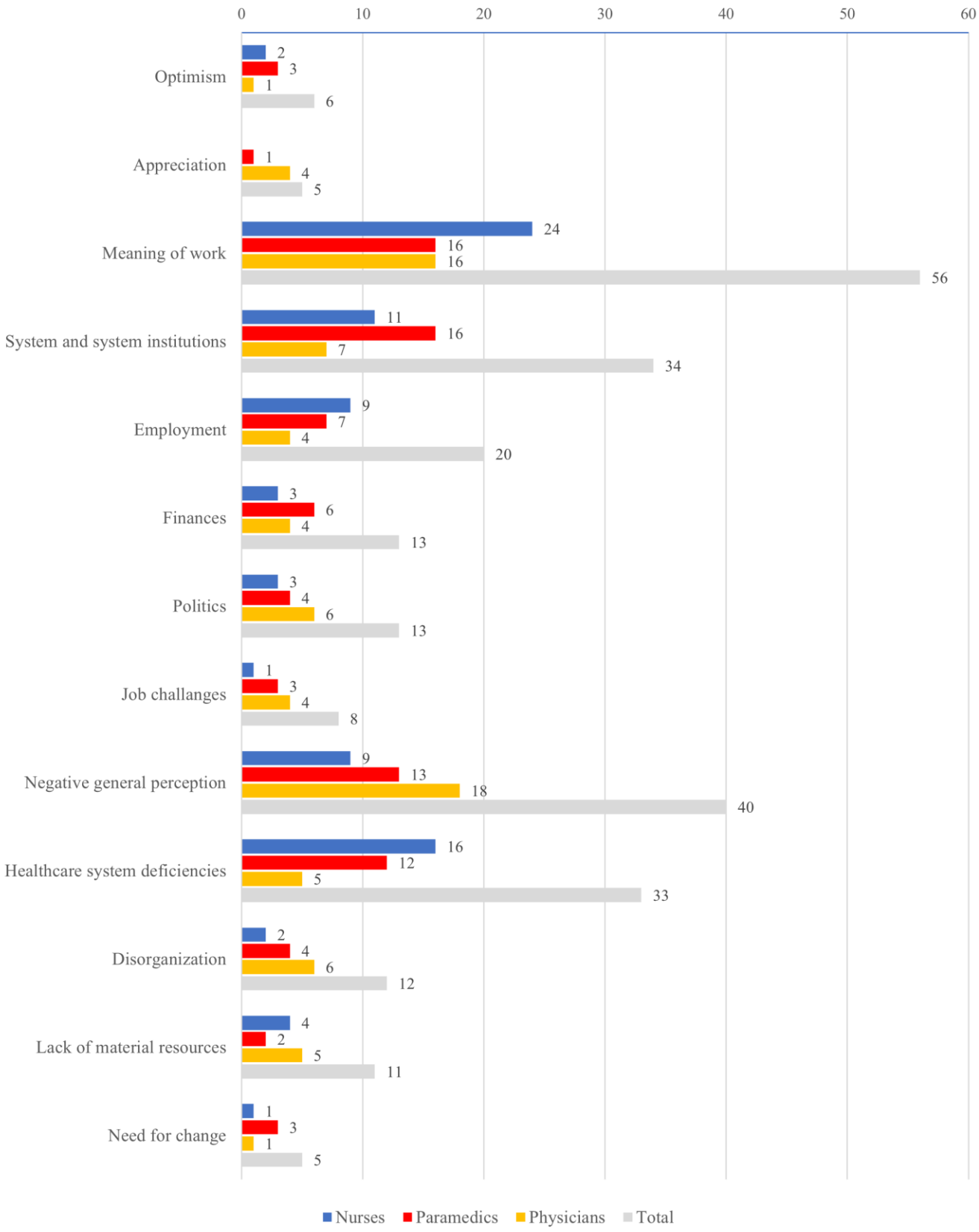
Specific frequencies for each of the three groups of health workers are presented in Figure 1. The Chi-square test shows no difference between medical doctors, paramedics, and nurses in their ratio of positive, negative, and neutral associations ($\chi^2[4] = 2.55$; $p = 0.64$; $V = 0.07$). Next, we looked at differences at the level of subordinate categories. We found a statistically significant difference in the category of Healthcare system deficiencies ($\chi^2[2] = 6.17$; $p = 0.046$; $V = 0.15$) between medical doctors and nurses ($Z = 2.50$; $p = 0.01$; $h = 0.42$). Nurses produced more free associations that related to deficiencies than medical doctors, with small effect size. Moreover, we observed a marginally statistically significant difference between medical doctors and nurses in how frequently they produced associations in the category of Negative general perception ($Z = 1.95$; $p = 0.05$; $h = 0.32$). In this case, medical doctors produced more associations than nurses with small effect size. Other comparisons among the groups of health professionals across categories were insignificant.

Beyond a mere list of categories and their frequencies, we also aimed to model a network in Gephi software that visualizes and quantifies relations between categories of associations. Figure 2 presents the network of associations. The most central categories are Negative general perception and Healthcare system deficiencies, followed closely by System and System institutions and meaning of work.

In Figure 2, negative categories (colored in red) and neutral categories (colored in blue) are grouped closely together, suggesting that the respondents tended to form associations of the same emotional valence. The strongest link is between two neutral categories, Meaning of work and System and System institutions (weight = 13), followed by a pair

Table 1 Categories of associations produced by the cue word "health system"

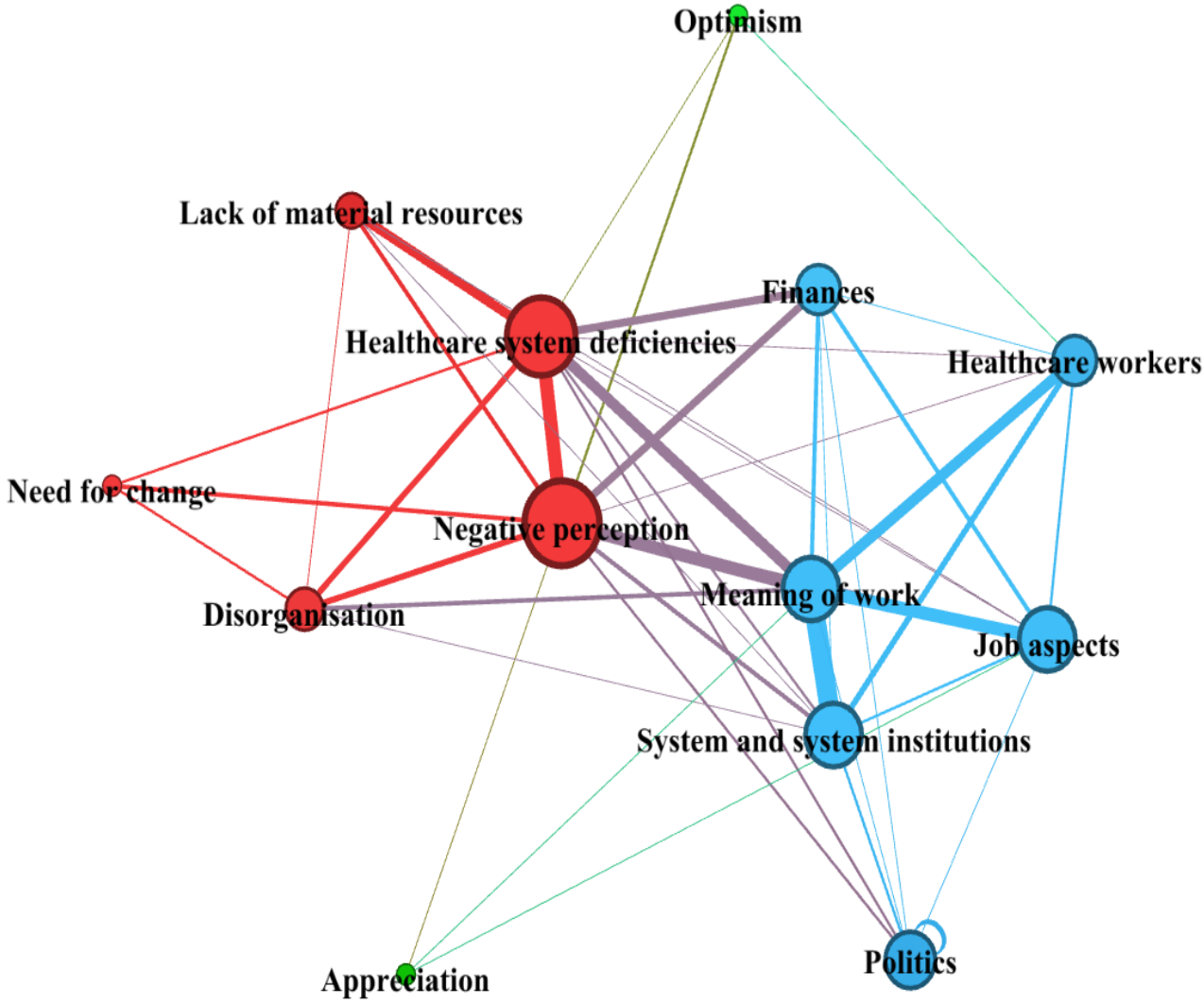
Valence	Category	Brief definition	Examples	Frequency n (%)
Positive	optimism	expressing hope for improvement of health care	hope, trust, progress	6 (2.23)
	appreciation	stressing the importance of health care	useful, necessary, importance	5 (1.86)
Neutral	meaning of work	stating the goal and social value of health care	help, service, therapy	56 (20.82)
	system and system institutions	system or naming its institutions	system, hospital, insurance companies	34 (12.64)
	employment	health care as an occupation / job	nurse, personnel, job	20 (7.43)
	finances	explicit mention of finances (or synonym) without affective connotation	finances, money	13 (4.83)
	politics	political institutions or political figures	ministry, politics, government	13 (4.83)
	job challenges	pointing out various challenging aspects of work in health care	stress, shifts, expertise	8 (2.97)
Negative	negative general perception	expressing negative affective evaluation of the state of health care	horror, crisis, catastrophe	40 (14.87)
	healthcare system deficiencies	pointing out specific defects in the healthcare system	corruption, socialistic, lack of personnel	33 (12.27)
	disorganization	seeing the healthcare system as messy, confusing, and disorganized	chaos, mess, disorder	12 (4.46)
	lack of material resources	pointing out the lack of funding or lack of quality equipment in health care	misery, debt, low wages	11 (4.09)
	need for change	pointing out the necessity of reforming health care	change, reform, reparation	5 (1.86)
Undefined		too abstract or otherwise unclear associations	Slovak, people, death	13 (4.83)



Note. The total number of free associations is n = 256 (excluding undefined associations), nurses (n = 86), paramedics (n = 90), medical doctors (n = 81).

Figure 1 Frequencies of association categories for medical doctors, nurses, paramedics, and total counts

of negative categories, Negative general perception and Healthcare system deficiencies (weight = 9). The strongest point of connection between neutral and negative categories is between Negative general perception and the Meaning of work (weight = 8). The link between Employment and the Meaning of work has identical strength. The neutral categories Finances and Politics had their two strongest connections with the most frequent and central negative categories (Negative general perception and Healthcare system deficiencies), suggesting that their connotations are predominantly negative. The three strongest connections of each node with weight values are listed in Table 2.



Note. Subcategories of associations are distinguished by colors – red for negative, blue for neutral, and green for positive. Each theme has a separate node, the size of which is determined by degree of centrality (the bigger the node, the more central it is). The weight of the edges of the connected nodes is defined by the thickness of the connecting line (the thicker the edge, the more weight the connection has).

Figure 2 A network of association categories produced for the cue word "health care"

Table 2 The list of the three strongest links of each node in network analysis

Category	1st	2nd	3rd
Appreciation	meaning of work (1)	employment (1)	negative general perception (1)
Optimism	negative general perception (2)	employment (1)	healthcare system deficiencies (1)
Finances	negative general perception (5)	healthcare system deficiencies (5)	meaning of work (3)
Politics	healthcare system deficiencies (2)	negative general perception (2)	system and system institutions (2)
System and system institutions	meaning of work (13)	employment (4)	negative general perception (3)
Employment	meaning of work (8)	system and system institutions (4)	negative general perception (3)
Job challenges	meaning of work (6)	employment (2)	finances (2)
Meaning of work	system and system institutions (13)	employment (8)	negative general perception (8)
Negative general perception	healthcare system deficiencies (9)	meaning of work (8)	finances (5)
Healthcare system deficiencies	negative general perception (9)	meaning of work (7)	lack of material resources (6)
Disorganization	negative general perception (4)	healthcare system deficiencies (4)	meaning of work (4)
Lack of material resources	healthcare system deficiencies (6)	negative general perception (3)	disorganization (1)
Need for change	negative general perception (3)	disorganization (2)	healthcare system deficiencies (2)

Note. Values in brackets represent the node's weight of edge to the node in the left column. The weight is equivalent to the sum of co-occurrences (i.e., associations of those two categories were given by the same respondent).

Discussion

Health professionals are the backbone of health systems, and healthcare quality depends on their competence, commitment, and motivation. Therefore, the goal of the current research was to find out how the three groups of health professionals – medical doctors, nurses, and paramedics – perceive the Slovak health system, which has been in an unenviable situation for decades. Through the free association method, we established 13 main categories. Subsequently, we divided them into three main superordinate categories: positive (Optimism and Appreciation), neutral (Meaning of work; System and system institutions; Employment; Finance; Politics and job challenges), and negative (Negative general perception; Healthcare system deficiencies; Disorganization; Lack of material resources, and need for change). Importantly, even though the category disorganization refers to a negative perception of public health, we considered that it deserved a separate theme due to its frequency. In terms of emotional valence, the neutral category was the most saturated (54%), followed by the negative emotional valence category (38%). The category reflecting a positive perception of Slovak healthcare produced only 4% of the total amount of associations. Interestingly, when considering differences among the three groups – medical doctors, nurses, and paramedics – medical doctors had a greater tendency to report associations expressing general discontent with public health rather than specific shortcomings of the system when compared to paramedics and (especially) nurses. A possible explanation for this finding might be that medical doctors are less affected and less in contact with negative aspects of the Slovak health system, such as low salaries, overworking, or insufficient equipment.

In general, the relatively large size of the superordinate negative category suggests that Slovak health workers indeed face tremendous frustrations, which may be caused by many reasons indicated by associations themselves – such as excessive workload, underappreciation, lack of funds, corruption, obsolete system, or chaos. Similar results were observed by Szabo et al. (2020), who also stated that the most demotivational factors among Slovak health professionals were poor employee appraisal, either in the form of salary or in the form of praise or rewards; the next factor was lack of appreciation in the workplace from top management, direct supervisor, and employees themselves. The authors also concluded that work conditions such as air conditioning of the rooms (hot summer, cold winter),

cheap equipment, and frequent repetitive work shifts are inadequate for employees. All these factors led participants to leave their workplaces or refuse to perform required tasks.

The results of our research are also in line with other studies which have revealed that inadequate salary (Kok et al., 2015; Mpembeni et al., 2015), insufficient training opportunities (Robertshaw et al., 2017), or lack of respect and community trust (Grant et al., 2017) are major reasons for dissatisfaction and demotivation. Moreover, according to the concept of Antonovsky (1990), a lack of comprehension and control of the environment reflected in the disorganization category leads to increased frustration and inability to cope with stressful events. Not only can these factors lead to reductions in the labor force in public health, but they can potentially contribute to medical errors when providing healthcare. According to the renowned and still often-discussed Swiss cheese model, organizational and systemic factors can cause workers to commit errors – referred to as latent failures (Larouzee & Le Coze, 2020). In short, a worker who is fatigued due to the shift system, who does not have sufficient equipment, training, supervision, etc., is much more likely to fail, resulting in harm to the patient. Consequently, since we face the crisis of a shortage of health professionals, losing them casually and neglecting their working conditions is dangerous for the safety of patients and also for the system.

The visible negativity of our findings led us to question why health professionals stay in their positions when their perception of the Slovak health system is associated with so many negatives. The answer most probably lies in the highly saturated category Meaning of work. Ugwu and Onyishi (2018) observed that higher psychological meaningfulness was related to higher work engagement regardless of the level of organizational frustration. Moreover, when Dopelt et al. (2019) examined paramedics who had decided to leave their work, many of them expressed an emotional attachment to the profession and a sense of mission. Their decisions to leave the profession were mainly connected to a lack of compensation (salary and / or work conditions). In addition, our network analysis results also support a strong connection between the two categories: Negative general perception and the Meaning of the work. Our explanation of this contrasting connection is that health professionals still perceive their job to be meaningful. Finally, we would suggest that reminiscing about the Meaning of work also serves as a coping mechanism to outweigh frustration. Nevertheless, despite the fact that (or because) health professionals have essential functions in our society, it is unfair to expect them to perform their tasks motivated solely by the sense of social responsibility or meaningfulness of their work.

The network analysis also showed that the categories of finances and politics were significantly associated with negatively valenced associations, suggesting a negative connotation, at least to a certain extent. However, we did not wish to impose meaning on associations that were not sufficiently explicit. Health professionals also identified some challenging aspects of their work (e.g., stress, shifts), but unlike finances and politics, job challenges were not strongly related to negative categories. Therefore, we hypothesize that health professionals see their job challenges as a natural and inevitable part of their job.

The limited number of positive associations in our study can be perceived as a disappointing indicator. On the other hand, it reveals a significant area for improvement, which does not necessarily require high costs. For example, improving organizational support, providing accurate and frequent information from higher levels of management, and making various types of resources available might improve the perception of the Slovak health system by health professionals (Giménez-Espert et al., 2020; Jankelová et al., 2021). Regehr et al. (2002) and Bégat et al. (2005) found that the perceived level of support in challenging situations was related to a lower level of stress, anxiety, and willingness to leave work among health professionals. We appreciate that systematic and consistent change takes time. Nevertheless, we suggest that improving communication and eliminating chaos might be inexpensive but critical first steps to retaining health workers in the Slovak health system.

Limitation of study

The method of free association provides access to a wide array of social representations and is time-effective, which is an obvious advantage when researchers work with over-occupied and exhausted participants. However, this method does not provide in-depth data that allow us to interpret their meaning accurately. The potential for ambiguity, thus, might increase the chance of misinterpretation. We tried to overcome this shortcoming by assessing the reliability of our analysis through inter-rater agreement calculations, discussions, and consensus among the authors. In addition, the size of the sample might be considered small; however, the high consistency and repetitive tendency in the collected associations indicate that our conclusions are built

on solid ground and provide an important reference point for future comparison. In addition, our findings might serve as a basis for conceptualizing topics of further and more extensive qualitative study design, such as in-depth interviews or focus groups, on the basis of which we could recommend specific policies and improvements for policymakers, relevant institutions, and authorities.

Conclusion

Health professionals (i.e., medical doctors, nurses, and paramedics) gave us valuable insight into the system in which they operate. Despite many negatives that emerged from the free associations, the Meaning of the work was the most saturated category that might motivate Slovak health professionals to stay in an overly demanding, underfunded, and often chaotic system. Our hypothesis also supports the finding that those who mentioned negative associations were often those who referred to the Meaning of the work. These results might partly calm stakeholders who are responsible for key reforms in the health system. However, we consider relying on the solidarity and empathy of health professionals to be risky and irresponsible. Although significant changes and reforms can be costly, we suggest demonstrating honest appreciation, strengthening communication, and improving working conditions as inexpensive options that would enhance the perception of the Slovak health system among health professionals.

Ethical aspects and conflict of interest

We are not aware of any conflicts of interests. Ethical review and approval were not required for the study on human participants in accordance with the local legislation and institutional requirements. All participants were informed about the terms, conditions, and procedures of the study in the Informed consent at the beginning of the survey. Their participation was voluntary, anonymous, and could be terminated at any time.

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Author contributions

Conception and design (MG, ZK), data collection (MG, ZK), data analysis and interpretation (MG, BU, ZK), manuscript draft (MG, BU, ZK), critical revision of the manuscript (MG, BU), final approval of the manuscript (MG, BU).

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