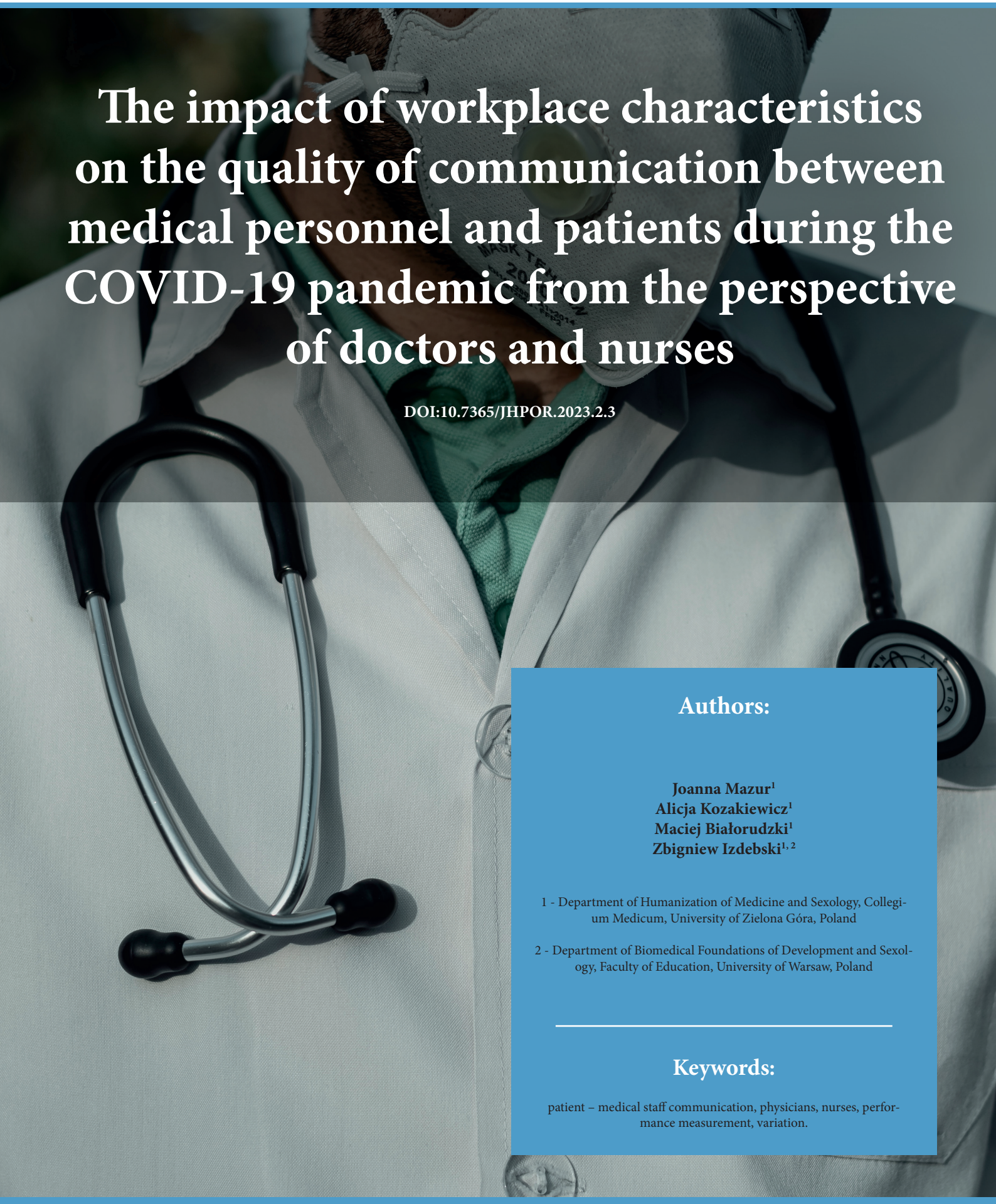
#02/2023
ISSN 2299-1247

JHPOR | Journal of Health Policy & Outcomes Research



The impact of workplace characteristics on the quality of communication between medical personnel and patients during the COVID-19 pandemic from the perspective of doctors and nurses

DOI:10.7365/JHPOR.2023.2.3

Authors:

Joanna Mazur[1]
Alicja Kozakiewicz[1]
Maciej Białorudzki[1]
Zbigniew Izdebski[1, 2]

1 - Department of Humanization of Medicine and Sexology, Collegium Medicum, University of Zielona Góra, Poland

2 - Department of Biomedical Foundations of Development and Sexology, Faculty of Education, University of Warsaw, Poland

Keywords:

patient – medical staff communication, physicians, nurses, performance measurement, variation.

How to cite this article?
Mazur J., Kozakiewicz A., Białorudzki M., Izdebski Z., The impact of workplace characteristics on the quality of communication between medical personnel and patients during the COVID-19 pandemic from the perspective of doctors and nurses J Health Policy Outcomes Res [Internet]. 2023[cited YYYY Mon DD];. Available from: http://jhpor.com/article/2335-the-impact-of-workplace-characteristics-on-the-quality-of-communication-between-medical-personnel-and-patients-during-the-covid-19-pandemic-from-the-perspective-of-doctors-and-nurses

contributed: 2023-06-28
final review: 2023-08-25
published: 2023-09-02

Corresponding author:
Joanna Mazur j.mazur@inz.uz.zgora.pl

Abstract

Objective

The aim of this study was to investigate to what extent the quality of communication between medical personnel and patients, as reported by doctors and nurses, may be attributable to characteristics of the healthcare facility at which they worked.

Method

A nationwide cross-sectional survey conducted in 2022 included 498 doctors and 1216 nurses who worked in 105 healthcare facilities and had contact with patients during the COVID-19 pandemic. The Health Professionals Communication Skills Scale (HP-CSS) indexed in four dimensions was applied. For the sample of 334 doctors and 621 nurses from 38 health care facilities who met the inclusion criteria, a null linear mixed model was estimated to calculate the intraclass correlation coefficient (ICC).

Results

An analysis of the ICC revealed that 8.8% of variability in the overall HP-CSS index for doctors and 7.1% for nurses could be attributed to the characteristics of the healthcare facility. Those factors had the strongest effect on the variability of informative communication in the group of doctors (12.8%). A weak positive correlation was noted between HP-CSS levels for doctors and nurses who worked in the same organizations (Spearman's rho = 0.232; p = 0.162).

Conclusion

The quality of doctors and nurses' communication with patients may depend on individual and workplace characteristics. Measures aimed at increasing the quality of healthcare services by improving personnel communication skills should include staff training, but it is likewise important to consider organizational change, including improving the social climate and the management model in healthcare facilities.

Introduction

In most countries, including Poland, raising medical care standards is essential to ensuring the sustainable performance of healthcare systems.[1] Although medical procedures are expected to be cost-effective and to adequately reflect current knowledge, focus is also devoted to improving the quality and availability of services, patient safety, and respect for patient rights. The fundings of surveys conducted among medical personnel and patients provide subjective indicators for monitoring the quality of healthcare services.

According to a recent OECD report,[2] only 26% of Poles were satisfied with the availability of quality health services, compared with an average of 71% for the 38 countries being studied and a maximum of 93% in Norway. Satisfaction with the availability of quality health care was one of the ten variables included in the analysis comparing healthcare systems in OECD countries, where Poland ranked fourth from the bottom.[3] In another global comparison covering 167 countries, Poland ranked 69th in terms of healthcare quality, measured using the Legatum Prosperity Index.[4]

Surveys on healthcare quality are taken in many countries, and the results of international comparisons are published.[5, 6] Hospitals and other healthcare facilities are evaluated in terms of the quality of their operation from the perspectives of organization, technology, and relationships, with emphasis being placed on efficiency in the provision of services and financial condition, including the level of debt.[7] A great deal of attention is devoted to medical communication at various levels (doctor–patient, nurse–patient, doctor–nurse), which falls under the assessment of the quality of relationships. Inadequate communication skills on the part of medical personnel are associated with patient dissatisfaction and non-compliance, and consequently with worse clinical outcomes or even risks to patient safety.[8, 9] Interventions aimed at improving patient–medical staff interactions were shown not only to affect health outcomes, but also to reduce costs.[10]

Healthcare workers experience high levels of occupational stress resulting from work overload, long working hours, shift work, and staffing shortages.[11, 12] Organizational factors such as poor management, excessive expectations, inadequate pay, limited interpersonal cooperation, and limited opportunities for advancement may result in job burnout.[13]

The COVID-19 pandemic has increased anxiety among healthcare workers, through the risk of infection as well as hindered access to information.[14] A key challenge posed by COVID-19 was to ensure that medical personnel had the information they needed and simultaneously to manage constantly changing guidelines and resources. Organizational support was found to be an important mechanism for reducing burnout in emergency situations.[15] The limitations of the pandemic may have affected the quality of communication between medical personnel and patients. In light of our own previous research, this was a major factor behind the negative evaluation of the treatment process by patients.[16]

Nevertheless, it can be assumed that some healthcare facilities provide better conditions for building relationships with patients, and the burden of the pandemic was felt unevenly. An important element of the assessment of the quality of healthcare services in the context of relationships involves using relevant methods to estimate variation between healthcare organizations and geographic regions. More attention should be devoted to the healthcare facilities at the top and at the bottom of the rankings related to the evaluation of the quality of services.[17]

The quality of the operation of healthcare facilities may depend on individual characteristics of their staff and organizational factors, as well as the profile of their patients, with some unexplained random variation.[18] Mixed-effects regression models allow observed variance in service quality measures to be partitioned into that attributable to chance and that attributable to underlying differences between healthcare organizations.[19]

To the best of our knowledge, there have been no investigations in the existing literature on the quality of patient–medical staff communication from the perspective of doctors and nurses in Poland, seeking to account for variation in term of the characteristics of the healthcare facilities in which they work.[20] However, the practical findings of such research may help determine the extents to which interventions aimed at improving communication skills should target healthcare professionals versus the healthcare facility and its management.[21]

The aim of the study

The aim of this study was to compare healthcare facilities in terms of the level of communication between medical personnel and patients based on perceptions expressed by health care professionals. The following key research questions were formulated:

- To what extent can the quality of communication between medical personnel and patients be explained in terms of the characteristics of the organization in which they work?
- Which dimension of the scale the communication skills of doctors and nurses is most strongly related to workplace characteristics?
- Can positive characteristics of the workplace affect the communication skills of doctors and nurses to equal extents?

Materials and Methods

Sample

In our study, we analyzed the data collected in the project "Humanization of the treatment process and clinical communication between patients and medical personnel before and during the COVID-19 pandemic." We conducted cross-sectional surveys in the period from 21 February 2022 to 28 April 2022 among employees and patients of selected healthcare facilities, using mainly the online survey technique (Computer Assisted Web Interview, CAWI). The information obtained from patients was not included in this study because it is difficult to link it directly to the evaluation of the performance of the staff caring for the given patient. We randomly selected hospitals and clinics from all provinces providing services under contracts with the Polish National Health Fund (NFZ). The study was approved by the Research Ethics Committee at the Faculty of Education, University of Warsaw (no. 2021/8).

Complete questionnaires were obtained from four occupational groups: doctors (502 questionnaires), nurses (1233), paramedics (169), other medical and non-medical professionals (436). The respondents declared that they were employed in 105 of the 114 healthcare facilities whose directors agreed to participate in the study; in the remaining nine units only patients were surveyed. A detailed description of the selection of the organizations to be surveyed can be found in the final report.[22] We limited ourselves to data collected from 498 doctors and 1216 nurses who worked with patients during the COVID-19 pandemic. The mean age was 47.26±12.50 for doctors and 49.21±10.23 for nurses.

Data from 29 hospitals and nine outpatient clinics with at least three questionnaires obtained in both occupational groups were included for in-depth analysis. In those 38 facilities, the questionnaire was completed by 334 doctors (167 men and 167 women) and 621 nurses (604 of which were female). Among the respondents, 71 doctors and 79 nurses did not specify their place of employment.

Research instruments

To assess the communication skills of medical professionals, we used the Health Professionals Communication Skills Scale (HP-CSS; with the author's permission). Developed in Spain, the scale containing 18 items analyzed in four dimensions: empathy, informative communication, respect, and social skills (sometimes referred to as assertiveness) was abbreviated to 12 items.[23] Responses provided by medical staff were coded on a six-point Likert scale (where zero stood for "almost never" and five stood for "many times"). The overall HP-CSS index scores thus ranged from 0 to 60 points, with sub-index scores ranging from 0 to 15 points, where higher scores indicated better skills. The scale used had satisfactory psychometric properties in the entire study sample.[24] This was confirmed by data from the selected sample of 38 healthcare facilities. The value of Cronbach's alpha for the full scale was 0.896 and ranged from 0.740 to 0.812 for individual subscales.

Statistical analysis

In the first stage, we compared doctors and nurses in terms of average HP-CSS index scores according to the three groups of healthcare facilities. The Kruskal–Wallis non-parametric test was used with a post-hoc multiple comparisons test. After that, the variation of the mean values of the indices was presented within the first group of 38 healthcare facilities, and the effect of the workplace on their variability was estimated using the null multilevel linear model. The intraclass correlation coefficient (ICC) was used as a measure of the cluster sampling effect. We also calculated Spearman's rho and graphically presented the correlations between the mean values of the HP-CSS indices for doctors and nurses, using data aggregated at the level of 38 healthcare facilities.

Statistical analyses were performed using the statistical software SPSS 28.0, including the procedure of mixed linear models with random effects where the identifier of the healthcare facility was specified as the subject grouping variable.[25]

Results

The mean value of the overall HP-CSS index was 47.43 in the sample of doctors and nurses from 38 healthcare facilities, compared with 47.78 in the entire sample, indicating that the selected hospitals and clinics were representative. However, the post-hoc analysis in the Kruskal–Wallis non-parametric test showed statistically significant differences among the three categories of facilities at the level of the overall index among doctors (p = 0.012), with no differences among nurses (p = 0.784). Differences among physicians from the three categories of healthcare facilities were found to be significant in three dimensions (except for social skills), and manifested themselves in better self-evaluation of those who did not state their place of work (Table 1).

For nurses, no differences were found between the average communication indices in the four dimensions, comparing the three categories of healthcare facilities defined based on the declared workplace and the level of participation in the project (Table 2).

A closer comparison of the 38 healthcare facilities shows that the HP-CSS index values for many of them differs from the mean value recorded for the entire sample being

Table 1. HP-CSS index values for doctors by category of healthcare facilities participating in the study

	Total	Category of healthcare facilities			Kruskal–Wallis p
		Included in further analyses	Excluded from further analyses	Not specified	
Employees (N)	498	334	93	71	
Total index	47.78±8.12	47.43±8.07	47.04±9.09	50.35±6.46	0.012
Respect	12.04±2.39	11.90±2.39	11.99±2.66	12.76±1.90	0.018
Informative communication	12.66±2.21	12.54±2.24	12.54±2.37	13.42±1.64	0.006
Empathy	11.68±2.46	11.60±2.42	11.43±2.64	12.35±2.29	0.021
Social skills	11.39±2.54	11.39±2.53	11.09±2.84	11.82±2.09	0.230

Table 2. HP-CSS index values for nurses by category of healthcare facilities participating in the study

	Total index	Category of healthcare facilities			Kruskal–Wallis p
		Included in further analyses	Excluded from further analyses	Not specified	
Employees (N)	1216	621	516	79	
Total index	47.61±7.07	47.57±7.38	47.56±6.75	48.25±1.86	0.784
Respect	12.18±2.01	12.14±2.08	12.19±1.95	12.38±1.86	0.748
Informative communication	12.43±2.02	12.43±2.11	12.41±1.91	12.53±1.94	0.696
Empathy	11.95±2.09	11.93±2.17	11.93±2.02	12.27±1.95	0.440
Social skills	11.05±2.61	11.07±2.71	11.03±2.47	11.08±2.73	0.721

analyzed. The facilities where medical personnel gave the highest ratings to their communication skills were hospitals from two different large cities: a city hospital for doctors and a provincial specialist hospital for nurses. ICC estimates show that 8.77% of variability in the overall HP-CSS index for doctors is related to the workplace, and the highest ICC value was obtained here in the informative communication dimension. Among nurses, the effect of the workplace on the quality of communication with patients was slightly smaller than among doctors, and this held true for the overall HP-CSS index and its three dimensions (excluding the respect dimension). In nurses, the ICC values converted into percentages ranged from 4.76 (social skills) to 7.33 (respect).

Analysis of data from 38 facilities showed a weak positive correlation (Spearman's rho = 0.232) between the mean overall HP-CSS indices in the two occupational groups (p = 0.162). However, data from 33 facilities cluster around an upward trend line, and the correlation coefficient then increases to 0.338 (p = 0.054). Although the mean values of the overall HP-CSS index are similar in the two occupational groups, very low values (for example, below 45 points) were not recorded in the nurse group, and the standard deviation was lower in this group (Figure 1).

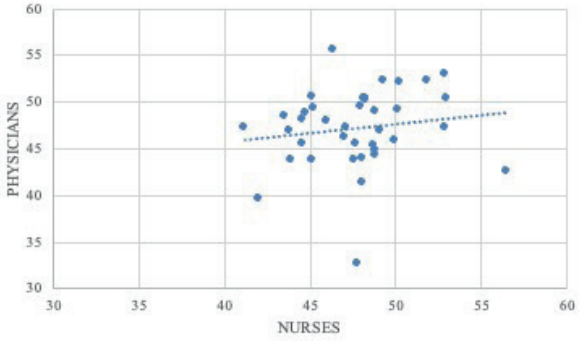


Figure 1. Mean overall HP-CSS indices for doctors and nurses from 38 healthcare facilities (triangles indicate outliers)

An analogous correlation analysis of the indices calculated for doctors and nurses performed for the four HP-CSS dimensions led to the identical conclusion regarding a weak positive correlation and the presence of outliers.

Discussion

The results we discuss herein are based on recent data from the final period of the COVID-19 pandemic. As such, this article is a contribution to the ongoing debate on the extent to which factors related to the workplace impact on the communication quality of medical professionals (doctors and nurses) employed in public health care facilities. Our decision to investigate this topic was driven by the conviction that doctors and nurses are exposed to a variety of stressors related to their work organization and interactions with patients and their families. The novelty of the analyses carried out lies in capturing the effect of working in the same unit (using the ICC coefficient) and correlating data from doctors and nurses. Working in a complex system where many "components" impact on one another, medical professionals are more likely to be exposed to stress and emotional exhaustion.[26, 27] Previous studies found that workplace atmosphere was associated with employee empowerment, and that a positive work environment played an important role in reducing job burnout among employees.[28] How healthcare workers perceive their workplace culture therefore plays a role not only in preventing burnout and boosting job satisfaction, but also in providing good quality patient care, including communication aspects.[29]

The results presented herein indicate that 8.8% of variability in the overall HP-CSS index for doctors and 7.1% for nurses can be attributed to the characteristics of the healthcare facility where they work, which is a significant effect. In a survey of doctors from 25 family practices in Germany, ICC rates of 3.7% were obtained by the investigation of variability in open communication using the KOVA questionnaire.[30] According to the US guidelines developed during the COVID-19 pandemic, comprehensive communication strategies developed for both internal and external stakeholders play a key role, and so do the information needs of patients and their families.[31]

An interesting finding was that those who refused to specify their place of employment in the survey self-evaluated their own communication relatively better. Surveys of employees have revealed the existence of certain respondents who give overly positive answers.[32] In our study, a

Table 3. Variability of HP-CSS indices in selected 38 healthcare facilities (M – mean; ICC – intraclass correlation coefficient as a percentage of variance)

	Physicians		Nurses	
	Range (M)	ICC	Range (M)	ICC
Total HP-CSS index	32.75–55.60	8.77%	41.17–56.50	7.07%
Respect	7.50–14.20	6.50%	10.38–14.25	7.33%
Informative communication	8.25–14.25	12.88%	10.92–14.50	6.09%
Empathy	8.25–13.80	6.68%	10.23–14.25	5.82%
Social skills	8.75–13.80	5.95%	8.00–13.50	4.76%

decisive role may have been played by the legal form of employment, the position held, motivation to participate, general knowledge about the project, and the concept of the humanization of medicine. Clarifying this question would require further analysis.

In addition, we found the strongest relationship with the workplace for the dimension of informative communication in the group of doctors (12.9%). This may be related to organizational conditions, such as the limited time that doctors have to provide information. Importantly, one of the main directions of change in healthcare recommended by Poland's Supreme Chamber of Audit (NIK) involves creating a patient information system – an authorized, modern, and user-friendly source of knowledge about health and treatment.[33] The literature indicates that doctors should provide relevant information, but also respect the information needs and preferences of patients, and patients should be encouraged to share information, all of which leads to the creation of an atmosphere of trust.[34] Appropriate organizational conditions should allow doctors to communicate relevant information to patients, with time pressure posing a clear barrier here. In a study of nurses in Canada, a simulation of the effectiveness of their decisions revealed that time pressure negatively affected their ability to recognize and implement appropriate actions in critical situations.[35]

In our study, we noted a weak positive correlation of the HP-CSS indices for doctors and nurses (if we take into account data aggregated at the healthcare facility level), with the level of this correlation being decreased by untypical facilities. Doctors and nurses may be influenced by other factors related to the work environment. Another explanation could be intergroup conflicts, both among doctors and among nurses. Such conflicts affect the quality of the work of each group and lower its effectiveness. The issue of the consistency of communication skills at the level of healthcare facilities can be considered in the context of teamwork. Nurse–physician collaboration means working together, sharing responsibility for solving problems, and making decisions to formulate and implement patient care plans.[36] Although such communication is considered a key part of the flow of information in healthcare, growing evidence suggests that inadequate communication can create a chronic state of conflict between nurses and physicians, leading to an increase in medical errors and worse treatment outcomes.[37, 38]

The study reported herein is the first in a series of analyses that take into account the hierarchical structure of the data collected in the project "Humanization of the treatment process and clinical communication between patients and medical personnel before and during the COVID-19 pandemic." Our analyses of this data have confirmed the validity of using mixed regression models with random effects in assessing the quality of healthcare services. It is theoretically possible in similar studies to link personnel and patient survey data to more objective discharge data (30-day mortality, seven-day readmissions, and length of stay), and even treatment costs.[39, 40]

Certain limitations of this study stem from the fact that these are preliminary analyses of null models without any covariates and from the uneven participation of individual healthcare facilities in the project. Conducting field research and linking the results to the characteristics of the hospitals were hindered by the short duration of the project and regulations limiting the openness of the information collected about the hospitals. We should also note the problems related to obtaining a similar number of completed questionnaires in each healthcare facility. Nevertheless, if no "healthcare facility effect" on communication existed, the ICC values would have been close to zero. Future studies should consider the size of the healthcare facility, which also translates into how many completed questionnaires can be obtained. A Norwegian study found that doctors from local hospitals showed substantially higher levels of communication skills after completing their post-graduate medical training than doctors from large hospitals.[41]

Conclusions and implications

In sum, we have found that the quality of doctors' and nurses' communication with patients may depend, in part, on the characteristics of the healthcare facility in which they work – the atmosphere in the workplace, the management model, and the training offered. This, in turn, indicates that the quality of communication between medical personnel and patients can be effectively improved through interventions at the organizational level that focus on creating a favorable work environment to promote engaged communication in stressful situations and therefore increase patient safety. Moreover, it suggests that care should be taken to devote sufficient time to effectively supervising medical students and junior doctors and helping them improve their communication skills.[42] Lastly, it should be emphasized that institutional change depends primarily on the perceived need for such action by managers of healthcare facilities, which can be facilitated by interventions and measures implemented at the local and central government level.

The project carried out at the University of Warsaw was funded by the national budget from the Medical Research Agency, contract number 2021/ABM/COVID/ UW.

The authors report no conflict of interest.

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