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Quality of health care and interdisciplinary collaboration from the perspective of employees and patients

Jakość opieki zdrowotnej i współpraca interdyscyplinarna z perspektywy pracowników i pacjentów

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STRESZCZENIE

JAKOŚĆ OPIEKI ZDROWOTNEJ I WSPÓŁPRACA INTERDYSCYPLINARNA Z PERSPEKTYWY PRACOWNIKÓW I PACJENTÓW

Wprowadzenie. Współpraca w zespole interdyscyplinarnym jest ważnym aspektem zapewnienia jakości i bezpieczeństwa opieki nad pacjentem, chociaż interakcja osób reprezentujących różne dyscypliny w środowisku klinicznym może być również utrudniona przez nieodpowiednią komunikację.

Cel pracy. Niniejsze badanie jest próbą wypełnienia luki badawczej i zidentyfikowania postrzegania przez profesjonalistów współpracy interdyscyplinarnej i kryteriów jakości, wpływu współpracy interdyscyplinarnej na jakość opieki w typowym słoweńskim szpitalu ogólnym oraz wyjaśnienia tego z perspektywy pracowników służby zdrowia i pacjentów.

Materiał i metody. Studium przypadku zostało przeprowadzone przy użyciu ankiety przeprowadzonej wśród pracowników służby zdrowia (N = 150) oraz podejścia jakościowego poprzez wywiady z pracownikami służby zdrowia (N = 47) i pacjentami (N = 20).

Wyniki i wnioski. Wyniki ankiety wskazują, że pielęgniarki najwyżej oceniły wszystkie kryteria współpracy interdyscyplinarnej oraz indywidualne kryteria jakościowe, a najgorzej ogólnie jakość opieki, gdyż nie były zadowolone z realizacji z powodu braku kadr. Wymiana informacji nie wpłynęła na jakość opieki, ponieważ władze organizacyjne i krajowe nie uwzględniały w wystarczającym stopniu opinii personelu. W wywiadach pogłębionych pacjenci źle oceniają pracę zespołową, ponieważ nie otrzymują wystarczających wyjaśnień i nie czują się traktowani jako równorzędni członkowie zespołu medycznego. W wywiadach pogłębionych pacjenci i pracownicy służby zdrowia są świadomi braku pracy zespołowej między sobą, a także jakości opieki ze względu na braki kadrowe w ogóle, a zwłaszcza w czasie pandemii.

Słowa kluczowe: jakość opieki zdrowotnej, współpraca interdyscyplinarna, praca zespołowa, pracownicy służby zdrowia, pacjenci

ABSTRACT

QUALITY OF HEALTH CARE AND INTERDISCIPLINARY COLLABORATION FROM THE PERSPECTIVE OF EMPLOYEES AND PATIENTS

Introduction. Cooperation in an interdisciplinary team is an important aspect of ensuring the quality and safety of patient care, although the interaction of individuals from different disciplines in the clinical environment can also be hampered by inadequate communication.

Aim. This study attempts to fill the research gap and identify professionals' perceptions of interdisciplinary collaboration and quality measures, the impact of interdisciplinary collaboration on the quality of care in a general hospital and clarify the perspective of patients and healthcare professionals.

Material and methods. The case study was conducted using a survey of healthcare professionals (N = 150) and a qualitative approach by interviewing healthcare professionals (N = 47) and patients (N = 20).

Results and conclusions. The results of the survey show that the nurses rated all the criteria of interdisciplinary cooperation and individual quality criteria the highest, and the quality of care in general the worst, as they were not satisfied with the implementation due to the lack of staff. The exchange of information did not affect the quality of care because organizational and national authorities did not sufficiently consider the views of staff. In in-depth interviews, patients rate teamwork as poor because they do not get enough explanation and do not feel treated as equal members of the medical team. In in-depth interviews, patients and healthcare professionals are aware of the lack of teamwork among themselves, as well as of the quality of care due to staff shortages in general and especially during the pandemic.

Key words: healthcare quality, interdisciplinary collaboration, teamwork, health professionals, patients

INTRODUCTION

Interdisciplinary collaboration is a key factor in ensuring high-quality and safe medical treatment for patients [1]. However, the interaction of individuals from different disciplines in a clinical setting can be complicated [2] for a variety of reasons, such as communication, trust, respect, mutual acquaintanceship, patient-centredness, task characteristics and environment [3]. Good collaboration in an interdisciplinary team is critical to a healthy work environment that has a strong impact on health care performance and quality of patient care [4]. Namely, information sharing among different health care providers in a team is an essential component of interdisciplinary teamwork because it allows health care providers from different disciplines to access the same information [5]. When patients talk about interdisciplinary teamwork, they usually refer only to doctors. It has shown that these professionals play a special role in the team and others are negligible [6]. Because previous studies of collaboration between members of the interdisciplinary team on quality of medical care have not simultaneously included staff and patients, we attempt to address this gap.

The quality of healthcare care has a major impact on treatment outcomes and it improves as the frequency of interactions between team members' increases [7]. Quality of care is based on many criteria, including information given to patients, regular monitoring of patients' needs, satisfaction and experiences, recording of the patient's treatment goals in documentation, professional competence, interpersonal relationships, appropriate constellation of services, and planned assessment and management of safety risks [8]. The patient's perspective is a key component of any strategy to improve health care quality [1]. Most studies on quality of care have used either a quantitative or a qualitative approach, neglecting the perspectives of all key stakeholders, especially patients [9].

While there is an emerging consensus that collaboration in interdisciplinary teams plays an important role in providing the best possible quality of care to patients in general, there is limited evidence on how sharing information about activities affects quality of care. Information sharing within the team could influence the quality of patient care and patient satisfaction [10]. A team that is highly connected through timely information sharing may be best suited to meet the diverse needs of patients [11].

AIM

As shared decision-making is a key element of patient-centred quality of care [12] and as no study on the role of collaboration in interdisciplinary teams on quality of care in a country with less efficiently organised health system [13] like Slovenia including all key stakeholders and used a mixed methods approach, the study aims to identify professionals' perceptions of interdisciplinary collaboration and quality criteria, and the impact of interdisciplinary collaboration on the quality of care in a typical Slovenian general hospital, and explain it from the perspective of patients and medical staff.

MATERIALS AND METHODS

A case study was used with a survey and in-depth interviews in Novo mesto General Hospital (NMSB). Quantitative data collection was followed by data collection through in-depth interviews and focus group interviews.

Quantitative approach

Using a quantitative approach with a survey measuring instrument, we determined the assessment of expert groups on participation in interdisciplinary teams and quality criteria, as well as the impact of participation in interdisciplinary teams on the quality of care. The surveys were collected at the Clinic for Nephrology, Neurology and Orthopedics. The survey was conducted in June 2021. The questionnaire was completed by 150 healthcare workers. Table 1. shows the socio-demographic characteristics of a sample of medical personnel participating in interdisciplinary teams in the treatment of patients in neurological, nephrological and orthopedic departments, where they treat very common diseases in old age [14].

To develop the instrument, we adapted the measures for all the study variables from previous published work that had measured reliability [15]. For further developing of measurement items, we conducted interviews with 5 academics and 5 healthcare professionals who had experience of interprofessional collaboration. The further refinement of the measurement items we conducted a pilot study with a sample of 25 health workers. The first question measured the extent of eight different quality criteria of the patient's healthcare treatment (see Tab. 2). The second set explored the assessment of the collaboration in the interdisciplinary teams, where respondents marked the answer that best reflects the actual situation. This set of question also included eight variables, from reliance on documentation to communication and decision-making (see Tab. 3). For all questions, respondents rated to what extent the statements are true in their work on a 5-point Likert scale (1 – never, 2 – rarely; 3 – occasionally, 4 – often,

Tab. 1. Socio-demographic characteristics of the sample (N = 150)

	N	%
Gender		
Male	20	13.3
Female	130	86.7
Age		
Up to 30	44	29.3
31-50	79	52.7
51 and more	27	18.0
Level of education		
Highschool	48	32.0
Undergraduate	78	52.0
Specialization or master's degree	19	13.0
Doctorate	5	3.0
Profession		
Doctors	13	8.7
Nurses	113	75.3
Other healthcare professionals (physiotherapists, clinical pharmacists, dieticians, psychologists, social workers, hygienists)	24	16.0

5 – very often). The third set included questions for variables on gender, age, level of education and occupation. The reliability of the measurement was checked by calculating the Cronbach reliability coefficient α. The results showed that the items had satisfactory discriminatory power, as α was above 0.7 for all constructs.

We used different statistical methods for analysis, namely descriptive statistics, analysis of variance (ANOVA) and multiple linear regression analysis. A value of $p < 0.05$ determined the limit of the statistical significance. Statistical analysis was performed using IBM SPSS, version 24.0.

Qualitative study

The qualitative method of research allows for in-depth exploration of content and understanding of teamwork and quality of care by medical staff and patients in a clinical environment, as well as verification and interpretation of the results of a quantitative study. Medical staff involved in the treatment of stroke patients, chronic kidney disease patients and hip arthroplasty patients. A total number of 27 health workers participated, most of them were females, mostly in the age group of 31 to 50 years. Three focus groups were conducted in September 2021 with 8-10 nurses and registered nurses in each group. The purpose of using the focus group was to check the data obtained through quantitative research and to find out the reasons for the assessment of the quality of participation in the team and the assessment of the quality of care, therefore we asked the interviewees two main questions (1) how they assess the cooperation in a multidisciplinary team and (2) how they assess quality of health care.

We also conducted 22 in-depth interviews with specialist doctors (10), head nurses (4), physiotherapists (2), clinical dietician (1), clinical pharmacist (1), psychologist (1), social worker (1), pharmacist (1) and health administrator (1). Most of the interviewees were female, 12 interviewees were under 30 years old, and 10 between 31 and 50 years old. Five qualified researchers conducted in-depth interviews lasting an average of 40 minutes as part of their research project. The use of multiple researchers enhances the credibility and reliability of the data collected. A thematic interview guide was developed for data collection, drawing on literature reviews, contextual knowledge, and quantitative study results. Three main questions were asked about assessment of the quality of care in the hospital and interdisciplinary team collaboration, and what the reasons for such assessment of the interdisciplinary collaboration are.

We spoke with 20 patients who had a deep total hip arthroplasty in October 2021. Due to the Covid-19 pandemic, access to patients in the other two departments was no longer possible. During the hospital discharge process, the researchers interviewed the patients. Participants ranged in age from 51 to 91 (M = 67), and included 14 men and 6 women. The central topic was the assessment of the participation of members in the interprofessional team and the assessment of the quality of medical care. The in-depth interview lasted about 50 minutes on average. After the prior consent of the participants, the in-depth interview was recorded, and the (anonymized) statements of the participants were transcribed.

The data was analyzed using thematic analysis. After the introduction, the thematic framework was identified with the creation of descriptive statements and data analysis through questioning. The next stage was indexing, which consisted of reading the data, highlighting and sorting citations, and comparing within and between cases. The fourth phase, charting, involved removing quotes from their original context and rearranging them within newly developed relevant thematic content. The last two phases were mapping and interpretation, which involved analyzing individual quotes and building relationships between quotes and connections between the data as a whole. The integration of the results of the qualitative and quantitative study was carried out by supplementing and explaining the results of the quantitative analysis with the results of the qualitative analysis in a narrative way, which allowed a deeper insight into the analyzed problem.

The Slovenian Research Agency (L7-2631-3824-2020) supported the research titled „Impact of integrated clinical pathways on patient outcomes, communication, and cost-effectiveness". The RS Commission for Medical Ethics gave the study their blessing (No. 0120-189/2021/3). To participate in the study, participants provided informed consent. After transcribing, the audio recordings were erased.

RESULTS

Quantitative study

The results of ANOVA analysis among different profession groups in table 2. show that rating of quality criteria of the patient's medical treatment differs by profession. On average, respondents rated as the most often used criteria of patient treatment quality clear recording of treatment goals and patient or family consent in documentation ($\mu = 4.10$) and systematic monitoring of patients' health and social needs for the purpose of their comprehensive, safe, and high-quality health care ($\mu = 4.02$). Rarely do health professionals collaborate with nongovernmental organizations or self-help groups according to patients' needs ($M = 2.84$). In all cases doctors rated the statements lower than nurses and other healthcare professionals. However, on average, doctors rated the general quality assessment of patient care better ($\mu = 4.15$), while nurses rated it significantly worse ($\mu = 3.94$).

Next, the differences between professional groups in terms of the elements of disciplinary collaboration were examined. The results of ANOVA analysis presented in the table 3. show that almost all determinants of interdisciplinary team collaboration are statistically significant perceived differently among professions, except for variables C1, C4 and C8. In general, C3, which refers to sharing information about changes in patient health status, received the highest ratings for interdisciplinary collaboration (4.68), followed by C6, which refers to making joint decisions (4.61), C5, which refers to joint planning and coordination of teamwork (4.60), and C4, which refers

Tab. 2. Quality criteria of the patient's healthcare treatment by profession groups

	Patient medical treatment quality criteria	Profession	N	μ	Σ	ANOVA (p)
Q1	Systematic monitoring of the patient's health and social needs	Doctors	10	**3.30**	1.059	0.014**
		Nurses	107	**4.07**	0.908	
		Others	15	**4.13**	0.990	
Q2	A clear record of treatment objectives and patient or family consent in documentation	Doctors	12	**3.58**	1.084	0.004**
		Nurses	108	**4.13**	0.958	
		Others	16	**4.31**	0.946	
Q3	Sufficient access to medical records according to provider jurisdiction	Doctors	12	**3.92**	0.797	0.005**
		Nurses	109	**4.05**	0.917	
		Others	18	**4.44**	0.705	
Q4	Planned assessment and management of safety risks and handling of safety deviations and side effects	Doctors	12	**3.50**	0.798	0.007**
		Nurses	104	**3.88**	0.969	
		Others	13	**3.77**	1.235	
Q5	Established collaboration with non-governmental organizations/self-help groups	Doctors	10	**2.10**	0.316	0.002**
		Nurses	94	**2.95**	1.298	
		Others	9	**2.56**	1.509	
Q6	Regular monitoring of patient well-being, satisfaction, and experience	Doctors	10	**3.20**	0.919	0.613
		Nurses	107	**3.93**	1.016	
		Others	15	**3.20**	1.320	
Q7	Regular measurement of patient outcomes	Doctors	11	**3.36**	1.026	0.055
		Nurses	104	**3.76**	1.153	
		Others	12	**3.25**	0.965	
Q8	Appropriate constellation of health treatment	Doctors	7	**3.14**	0.899	0.046*
		Nurses	101	**3.80**	1.217	
		Others	12	**3.58**	1.443	
Q9	Overall patient care quality assessment	Doctors	13	**4.15**	0.899	0.022**
		Nurses	103	**3.94**	0.938	
		Others	17	**4.54**	1.141	

* p < 0.05, ** p < 0.01, *** p < 0.001

to sharing information about the necessary activities that would be best for the patient (4.47). Similar to the quality assessment, we found that nurses rate collaboration between different teams in healthcare work environment significantly higher than doctors. The same applies to assessment of prioritisation of cost-effectiveness over the quality of treatment (C7), whereas nurses do this more often (3.09) then doctors (1.78) or other health care professionals (2.27).

Each determinant of interdisciplinary team collaboration was then used in a multiple regression analysis to determine the relationship between each component and the overall assessment of patient care quality (Q9). The regression model, according to the F-test, proved to be statistically significant (p-value < 0.05), with R2adj=0.244. The results (Tab. 4), considering standardized coefficients, obtained regular reliance on documentation to monitor patient medical condition (C1), asking opinion of another competent person before making the final decision (C2) and making the decision together as a team (C6), the greater the overall assessment of patient care quality (p-value < 0.000), whereas the other determinants of interdisciplinary team collaboration were not statistically significant.

Tab. 3. Assessment of interdisciplinary team collaboration by profession groups

	Interdisciplinary collaboration determinants	Profession	N	μ	Σ	ANOVA (p)
Q1	Reliance on documentation to monitor patient medical condition	Doctors	12	4.17	0.718	0.441
		Nurses	108	4.48	0.826	
		Others	17	4.35	1.115	
Q2	Asking for the opinion of another competent person before deciding	Doctors	12	3.75	1.055	0.001***
		Nurses	109	4.44	0.821	
		Others	16	3.75	1.125	
Q3	Informing each other about changes in patient health status	Doctors	12	4.42	0.669	0.012**
		Nurses	109	4.76	0.543	
		Others	16	4.31	1.078	
Q4	Sharing information about activities needed for the patient	Doctors	12	4.42	0.669	0.113
		Nurses	108	4.53	0.825	
		Others	17	4.06	1.248	
Q5	Joint planning and coordination	Doctors	12	4.42	0.793	0.000***
		Nurses	109	4.71	0.566	
		Others	16	4.00	1.033	
Q6	Making important decisions together	Doctors	12	4.42	0.515	0.016**
		Nurses	109	4.69	0.588	
		Others	15	4.20	1.082	
Q7	Prioritisation of cost-effectiveness of treatment over the quality of treatment	Doctors	9	1.78	1.093	0.016**
		Nurses	97	3.09	1.614	
		Others	15	2.27	1.486	
Q8	Treating patients and relatives as a team member	Doctors	11	3.18	1.250	0.150
		Nurses	94	3.89	1.131	
		Others	15	3.87	1.125	

* p < 0.05, ** p < 0.01, *** p < 0.001

Tab. 4. Estimation of coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(constant)	1.312	0.646		2.030	0.045
	C1	0.343	0.077	0.419	4.436	0.000***
	C2	0.209	0.086	0.238	2.431	0.017**
	C3	0.099	0.179	0.077	0.555	0.581
	C4	0.119	0.122	0.134	0.978	0.331
	C5	0.216	0.229	0.179	0.943	0.348
	C6	0.408	0.133	0.294	3.062	0.003**
	C7	0.049	0.050	0.108	0.978	0.331
	C8	0.070	0.070	0.109	0.993	0.323

* p < 0.05, ** p < 0.01, *** p < 0.001

We proceeded with a more in-depth analysis of each individual quality criteria. Table 5. shows the results of multiple regressions analysis, where the influence of collaboration determinants on the individual quality criteria was examined. Results show that the most important determinant is not to prioritise cost-effectiveness over the quality of treatment (C7), which proved to statistically significant effect on all quality criteria. This is followed by C6, i.e., making important decisions together as a team,

Tab. 5. Multiple regression by individual quality criteria

Dependant variable	Model			Determinants of interdisciplinary team collaboration							
	R^2	Sig.	Coeff.	C1	C2	C3	C4	C5	C6	C7	C8
Q1	0.370	0.000	B	0.319	0.290	-	-	0.618	-	0.202	0.168
			Sig.	*0.006*	*0.020*			*0.000*		*0.000*	*0.029*
Q2	0.367	0.000	B	0.183	-	-	-	-	0.455	0.198	0.253
			Sig.	*0.045*					*0.005*	*0.000*	*0.002*
Q3	0.101	0.003	B	-	-	-	-	-	0.416	0.134	-
			Sig.						*0.019*	*0.020*	
Q4	0.248	0.000	B	0.340	0.302	-	-	-	0.474	0.266	-
			Sig.	*0.003*	*0.011*				*0.006*	*0.000*	
Q5	0.245	0.000	B	-	-	-	-	-	0.439	0.392	-
			Sig.						*0.050*	*0.000*	
Q6	0.317	0.000	B	-	0.206	-	-	-	0.567	0.217	-
			Sig.		*0.049*				*0.002*	*0.000*	
Q7	0.315	0.000	B	0.264	-	-	-	-	0.370	0.348	-
			Sig.	*0.024*					*0.050*	*0.000*	
Q8	0.278	0.000	B	-	-	-	-	-	0.661	0.253	0.234
			Sig.						*0.003*	*0.001*	*0.031*

which was statistically significant in all models, except for Q1. However, the analysis showed that systematic monitoring of the patient's health and social needs is statistically significant affected by reliance on documentation (C1), asking for the opinion of another competent person (C2), joint planning and coordination (C5), quality priority (C7) and treating patients and relatives as a team member (C8). The exchange of information and views (C3 and C4) between team members surprisingly do not affect the quality criteria in any case.

Qualitative study

Team members' assessment of interdisciplinary collaboration and quality of care

The analysis of the focus groups and in-depth interviews supported the quantitative study's earlier findings and provided an explanation of the quality interdisciplinary team collaboration ratings (see Tab. 6). The analysis shows that the majority of doctors rated the collaboration in a team between doctors of different disciplines as poor because of a lack of mutual understanding and even rivalries. For example, some anaesthetists claimed that they did not collaborate optimally with the surgeons because the latter did not consider their work important enough and deliberately obstructed their work although the patients were simply not ready for surgery; however, on the other hand, some surgeons claimed that the anaesthetists deliberately caused complications in order to show their importance.

Participants from other professions expressed contradictory assessment of team collaboration based on inadequate collaboration due to insufficient funding for collaboration on the one hand and respect from team members as they solve urgent problems on the other hand.

Due to power differentials, general staff shortages, and workload brought on by the Covid-19 outbreak in particular, the investigation indicated discrepancies in how doctors and nurses assessed their ability to work together. The result is work overload and burnout staff. Participants also argued that collaboration in teams is hindered also by personal characteristics such as envy. A common argument of all participants was that collaboration and quality of care are interconnected, that they are mutually dependent. The analysis also revealed why nurses rated individual quality elements the highest among the professional groups and overall quality the lowest among the other groups. The majority of nurses stated that they are very committed to quality but are not satisfied with quality in general because they cannot be implemented as they should due to staff shortages.

The results also showed why the determinant that prioritise cost-effectiveness over quality of care is the most important determinant of the influence of the determinants of collaboration on the quality criteria. Most respondents interpreted this data by arguing that cost-effectiveness does indeed influence quality, as they do everything in their power to maintain the quality of patient care, even at the expense of one's own overload.

Why did the quantitative study show that the exchange of information and views has no influence on the quality criteria in any case? The results of the qualitative study show that the reason is poor communication with organisational management and national authorities, since the staff tries to maintain quality at the individual level, but key changes are not implemented because they are not heard by the organisational and national authorities (see Tab. 6).

Patients' assessment of interdisciplinary collaboration and quality of care

The analysis of the patient in-depth interviews showed that the consensus among all the participants' evaluations of receiving information from healthcare providers was a relatively positive one. However, patients stated that they were not available for additional information and explanations. They do not feel that they are treated as team members, as health professionals do not consider them as equal actors and co-decision makers (see Tab. 6).

Some respondents attribute this unequal position to lack of time, others to poor organisation, still others believe it is due to the characteristics of the individual health professionals, since some of them are arrogant. The analysis of the statements, in which the patients report about not being treated equally by the doctors, shows that they indicate a hierarchical position within the team.

The data also showed that while the majority of participants noted that healthcare workers were attempting to deliver the best care possible during the Covid-19 outbreak, the statements of all participants contained a very mediocre judgment of the quality of care in general. Most of the respondents waited more than a year for hip surgery, which they attribute to a systemic problem.

Tab. 6. Key themes from patients and healthcare workers

Themes of healthcare workers	Typical narrative of healthcare workers	Themes of patients	Typical narrative of patients
Poor evaluation of team cooperation between doctors of different disciplines due to lack of mutual understanding and rivalry	"Surgeons do not stick to agreements because they do not understand and respect our work". (Doctor 4)	Poor assessment of team collaboration	"I do not feel that I am treated as team members, as doctors do not consider me as equal player and co-decision maker". (Patient 3)
Conflicting assessments of the team's cooperation made by the team members due to poor cooperation due to insufficient funding for cooperation and respect as they solve urgent problems	"It is very bad that there is no regular collaboration because I only come when it is really necessary, but then the collaboration is great because they really need me". (Psychologist)	Reception of key information, but no additional explanation	"There is a really good conveyance of key information, but no additional interpretation of the treatment". (Patient 2)
Poor assessment of team collaboration between doctors and nurses due to power imbalance and lack of staff	"We communicate only what is most urgent because we have less power than doctors and we are too few to work in the normal way. Far too few". (Nurse 5)	Inequality in team due to lack of time, poor organisation, overload, personal characteristics	"I think there are many reasons for such behaviour, lack of time, poor organisation, employee overload and the unkindness of some doctors". (Patient 4)
Poor assessment of team collaboration due to personal characteristics of members	"In my opinion, also personal characteristics are crucial for good collaboration. Some doctors are arrogant and simply want to win at any cost". (Nurse 6)	Middle quality of care assessment	"How is the quality of care? Overall mediocre, good considering the circumstances". (Patients 5)
Interlinked collaboration and quality	"This is inevitably linked. There is not one without the other". (Administrator 1)		
Everyone is trying to improve quality, but nurses claim they are the least successful because of their staff shortage	"I think that we are all trying, each in our own way, but we are not the least successful because we are the least and because we feel the most the lack of staff". (Nurse 7)		
The impact on quality of care of not prioritising cost-effectiveness over quality of care is seen in extraordinary efforts, even at the expense of one's own overload	"Of course, this is an influence, because we do the impossible to maintain the quality of care at their own expanse". (Nurse 8)		
Exchange of information and opinions has no influence on the quality criteria because the opinion of the employees is not taken into account from organisational and national authorities	"Yes, of course there is no influence, because for major changes we have to be heard by those up there". (Doctor 7)		

DISCUSSION

Combining qualitative and quantitative methodologies was crucial because it gave researchers a deeper understanding of how interdisciplinary teams perceive quality. In-depth interviews and focus group discussions revealed that nurses' lower satisfaction with the implementation of quality of care due to staff shortages is the reason that survey results show that nurses rated the various quality criteria the highest of all professional groups, but generally rated the quality of care lower than other professional groups.

The results showed the problem of existing power imbalance between nurses and doctors/other health professionals. While the nurses clearly stated that they were hierarchically weaker than other team members, the patients confirmed this by referring only to the doctors as important team members. Pullon et al. [16] also found similarly that although patients were unaware of the roles of each expert on the team, they recognized only the doctor as the team leader. A power struggle or conflict between health care professionals [17], which patients would also observe, resulted in ineffective interdisciplinary collaboration. In Slovenian health care institutions, the role is assigned to doctors, and this hierarchy is difficult to eliminate [18]. It is a strong attachment to the rigid functional structure of the organization that causes the problem, which actually makes it impossible to introduce changes in health care. Therefore, the hierarchical organization still dominates in Slovenian health care organizations [19].

While the multiple regression analysis showed that the exchange of information and opinions did not have an impact on the quality criteria in any case, the results of the qualitative research showed that the main reason is the perception of the respondents that the quality of care is poorly implemented due to the lack of consideration of their opinions by the organisational and national authorities. The study showed that the realisation of quality at the personal level is not enough; the conditions for the realisation of quality must also be fulfilled at the organisational and macro levels. This is in line with the study, which confirms that implementing quality is a comprehensive project [20-22]. The in-depth interviews revealed that the lack of mutual understanding and interdisciplinary rivalry among the doctors was particularly striking. This is consistent with the findings of other studies, which indicate that interdisciplinary rivalry is considered one of the main causes of conflict among health professionals worldwide, manifesting itself in significantly divergent opinions about health team leadership, patient management, facility location and monetary issues [23].

The multiple regression analysis showed that the determinant prioritising cost-effectiveness over quality of care was the most important determinant of the influence of the determinants of collaboration on the quality criteria. The quality study found that the key answer was the perception that cost-effectiveness does indeed influence quality, as respondents tried to do everything in their power to maintain the quality of patient care, even at their own expense, i.e. excessive work. This broader understanding of the relationship between health care costs and quality, which, according to the literature review, is contradictory [24].

The patients rated the collaboration in the team as poor as, although they are well informed in the first place through various forms of communication, they do not receive enough additional information to interpret their situation and do not feel treated as equal members of the medical team. The patients explained that the behaviour of the healthcare staff is due to lack of time, poor organisation and personal characteristics as well as arrogance. This is in line with the results of other research showing that patients have proven to be necessary and active members in the process of their safe and quality health care [22, 25]. Other research has also highlighted two factors (time and workload) associated with ineffective collaboration. Patients believed that health workers could not do their job well because they were overworked [26], and based on their observations, they assumed that health workers worked in parallel rather than together [27, 30]. On the one hand, patients may not understand interdisciplinary team care in order to actively participate in or make decisions about medical care, and on the other hand, health professionals may have concerns about the patient's role in the health care team, which may hinder effective patient-centred interdisciplinary team care [21, 22, 28].

The results of the analysis of the in-depth patient interviews showed that, although the majority of the participants added that healthcare workers did their best to provide the best possible care during the Covid-19 pandemic, all participants' statements contained a relatively average evaluation of the quality of care in general.

The findings also demonstrated that patients and staff are both aware of the poor quality of care brought on by staff shortages in general and particularly during pandemics. According to State of Health in the EU: Slovenia [29], a significant concern for the Slovenian healthcare system is the lack of physicians and nurses. As a result, maintaining the health professions will benefit from hiring new team members, keeping current employees on the job through financial incentives, and promoting positive workplace traits like clear communication, encouraging leadership, ongoing professional development, appropriate autonomy, and collegial relationships among team members.

The biggest limitation is that only one Slovenian hospital participated in the research. The results can only give us an insight into the challenges of the cooperation of members of a multidisciplinary team in Slovenia and in comparable Eastern European countries. The next important limitation relates to the unusual circumstances surrounding the Covid-19 epidemic, where collaboration and work were different than before the epidemic.

CONCLUSIONS

There is a research gap regarding the interpersonal collaboration of the members of the interdisciplinary team in relation to the quality of healthcare treatment according to the assessment of team members. The study showed that nurses rated all the criteria of interdisciplinary collaboration and individual quality criteria the highest but rated the quality of care in general lower than other professional groups because they were less satisfied with the implementation of the quality of care due to the shortage of staff, which is currently a crucial problem in the Slovenian healthcare system. The existing differences in the assessment of teamwork between doctors and nurses are the result of power imbalances, staff shortages, staff overload, and also of personal characteristics. The exchange of information and opinions has not had an impact on the quality of care because organisational and national authorities have not taken staff information and opinions sufficiently into account. Prioritising cost effectiveness over quality of care was the most important determinant of the impact of the determinants of collaboration on the quality criteria, since the respondents tried to do everything in their power to maintain the quality of patient care, even in their own excessive work. Patients rated the teamwork as poor, as they do not receive enough explanation and do not feel treated as equal members of the medical team, although they are well informed in the first place through different forms of communication. They were satisfied with the quality of treatment, knowing the efforts of the staff in the face of the great shortage of nurses in particular. Although there are significantly more nurses than doctors employed in the hospital studied, the relationship between them is somewhat disturbed, which may have influenced the results themselves in that the nurses' opinion predominates.

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