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The association of rationed nursing care and the level of teamwork in acute care setting: a cross-sectional study

Związek między racjonowaniem opieki pielęgniarskiej a poziomem współpracy zespołowej w środowisku doraźnej opieki szpitalnej: badanie przekrojowe

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A – Development of the concept and methodology of the study/Opracowanie koncepcji i metodologii badań; B – Query - a review and analysis of the literature/Kwerenda – przegląd i analiza literatury przedmiotu; C – Submission of the application to the appropriate Bioethics Committee/Złożenie wniosku do właściwej Komisji Biotycznej; D – Collection of research material/Gromadzenie materiału badawczego; E – Analysis of the research material/Analiza materiału badawczego; F – Preparation of draft version of manuscript/Przygotowanie roboczej wersji artykułu; G – Critical analysis of manuscript draft version/Analiza krytyczna roboczej wersji artykułu; H – Statistical analysis of the research material/Analiza statystyczna materiału badawczego; I – Interpretation of the performed statistical analysis/Interpretacja dokonanej analizy statystycznej; K – Technical preparation of manuscript in accordance with the journal regulations/Opracowanie techniczne artykułu zgodne z regulaminem czasopisma; L – Supervision of the research and preparation of the manuscript/Nadzór nad przebiegiem badań i przygotowaniem artykułu

STRESZCZENIE

ZWIĄZEK MIĘDZY RACJONOWANIEM OPIEKI PIELĘGNIARSKIEJ A POZIOMEM WSPÓŁPRACY ZESPOŁOWEJ W ŚRODOWISKU OPIEKI SZPITALNEJ: BADANIE PRZEKROJOWE

Cel pracy. Zbadanie związku między racjonowaniem opieki pielęgniarskiej a poziomem współpracy zespołowej z perspektywy pielęgniarek pracujących w szpitalnym środowisku doraźnej opieki na Słowacji.

Materiał i metody. Opisowe badanie przekrojowe przeprowadzono między listopadem 2022 a lutym 2023 roku. Zbieranie danych odbyło się przy użyciu zestawu kwestionariuszy, które obejmowały Basel Extent of Rationing of Nursing Care – Revised (BERNCA-R) oraz Nursing Teamwork Survey (NTS), aby zbadać poziom współpracy zespołowej. Próba obejmowała 206 pielęgniarek z trzech szpitali powiatowych na Słowacji.

Wyniki. Średni wynik BERNCA-R wyniósł 2,11 (SD = 0,65), a dla NTS wyniósł 3,64 (SD = 0,35). Stwierdzono statystycznie istotny związek między racjonowaniem opieki pielęgniarskiej a poziomem współpracy zespołowej, a konkretniej: Zaufanie (r = -0,583), Orientacja zespołowa (r = -0,381), Wsparcie (r = -0,657), Wspólny model mentalny (r = -0,768) i Lider zespołu (r = -0,535) oraz ogólny wynik NTS (r = -0,174).

Wnioski. Te wyniki podkreślają znaczenie zajmowania się zjawiskiem racjonowania opieki pielęgniarskiej wśród pielęgniarek dyplomowanych i praktykujących w celu promowania lepszej współpracy zespołowej i poprawy wyników opieki pacjenta w środowisku doraźnej opieki.

Słowa kluczowe: opieka doraźna, szpitale, pielęgniarki, racjonowana opieka pielęgniarska, praca zespołowa

ABSTRACT

THE ASSOCIATION OF RATIONED NURSING CARE AND THE LEVEL OF TEAMWORK IN ACUTE CARE SETTING: A CROSS-SECTIONAL STUDY

Aim. To explore the association of rationed nursing care and the level of teamwork from the perspective of nurses working in an acute care setting in Slovakia.

Material and methods. The descriptive cross-sectional study was conducted between November 2022 and February 2023. Data collection was carried out using a set of questionnaires that involved the Basel Extent of Rationing of Nursing Care – Revised (BERNCA-R) and the Nursing Teamwork Survey (NTS) to explore the level of teamwork. The sample consisted of 206 nurses from three district hospitals from Slovakia.

Results. The mean score of the BERNCA-R was 2.11 (SD = 0.65) and for NTS, it was 3.64 (SD = 0.35). A statistically significant association was found between rationed nursing care and the level of teamwork, more specifically, Trust (r = -0.583), Team orientation (r = -0.381), Backup (r = -0.657), Shared mental model (r = -0.768), and Team leader (r = -0.535) and the overall score of the NTS (r = -0.174).

Conclusions. These findings underscore the importance of addressing the phenomenon of rationed nursing care among registered and practical nurses to foster better teamwork and enhance patient care outcomes in acute care settings.

Key words: acute care, hospitals, nurses, rationed nursing care, teamwork

INTRODUCTION

In recent decades, patient safety, as well as the development of its culture, has been jeopardized by the phenomenon of rationed nursing care. This phenomenon represents the imbalance between available resources and demands on the provision of nursing care. The degree of rationing is defined as the number of essential nursing tasks that are either neglected or incomplete. Furthermore, this phenomenon is at the center of interest for researchers dealing with issues such as nursing shortage, care quality, and patient safety [1]. Research on rationed care is mainly focused on mapping the factors influencing the occurrence of this phenomenon in various clinical settings and its impact on patient safety and quality of care. The results of recent studies highlight common factors, such as the nurse-to-patient ratio, inefficient task delegation, unexpected increase in patient numbers and associated resource shortages (e.g., material), inadequate nurse-patient communication, physical or psychological burden on nurses, or the implementation of non-nursing activities [2,3].

One of the modifiable factors that influence patient safety is teamwork. Healthcare is a complex process that, together with limitations in human performance, even in highly motivated, experienced, and highly qualified individuals, can lead to errors in the delivery of care [4]. Effective communication and teamwork are essential to ensure quality and safe patient care, but also to ensure sustainable nursing practice, and subsequently can help prevent errors that may result in further harm to the patient or the healthcare provider [4,5]. It is estimated that one in ten patients experiences direct harm during healthcare delivery, with nearly 50% of these injuries being preventable [6]. In addition, quality nursing care as an integral part of healthcare and teamwork respects the patient's rights and is derived from their needs. The nursing team that provides quality care is professionally prepared, motivated, and sets realistic goals that they adhere to [7]. Dysfunctional team characteristics, such as ineffective conflict management, lack of mutual trust, team instability when combining different shift durations, or communication issues during shift handovers, differentiate an ineffective team from a functional one [8].

Based on the above-mentioned, in the intricate tapestry of healthcare delivery, the dynamic relationship between teamwork and the provision of comprehensive nursing care stands as a focal point worthy of thorough investigation. Smooth collaboration between healthcare professionals, particularly within nursing teams, plays a crucial role in ensuring the holistic well-being of patients [9]. Central to this dynamic is the question of whether the quality of teamwork significantly influences the occurrence of missed nursing care – a phenomenon that raises concerns about the potential gaps in the delivery of patient care [1,7].

Currently, there are several quantitative studies that investigate and demonstrate the association of rationed nursing care and the level of teamwork in acute care settings [10-12]; however, only a limited number of studies were conducted in the European region and none of them were carried out in Slovakia. To mitigate the phenomenon of rationed nursing care from clinical practice and improve the level of teamwork, it is essential to explore this association in various settings and contexts.

AIM

To explore the association of rationed nursing care and the level of teamwork from the perspective of nurses working in an acute care setting in Slovakia.

MATERIALS AND METHODS

We conducted a descriptive cross-sectional study that was carried out according to the STROBE checklist [13]. The study was carried out between November 2022 and January 2023 and involved twelve different care units providing care to adult patients in three district hospitals in two regions of Slovakia. After giving permission to conduct the study, respondents (registered nurses, practical nurses) were selected based on the convenience sampling method. Respondents were included in the study if they: a) worked in adult care units as a registered nurse or practical nurse; b) provided informed consent; c) provided nursing care at the bedside. In contrast, respondents were not included if they: a) did not work in 12-hour-shifts; b) worked in gynaecology-obstetric care units (nurses at these workplaces perform specific nursing care activities that are not included in the instrument for rationed nursing care used in this study). Of the 317 questionnaires distributed, 206 were returned, resulting in a response rate of 64.98%.

The selection of these two nursing roles was based on their integral collaboration in the delivery of nursing care to patients in hospital settings. In Slovakia, a registered nurse completes an approved nursing education program (higher or university education). They provide direct patient care, administer medications, assist with procedures, monitor vital signs, educate patients and their families, collaborate with other healthcare professionals, and ensure patient safety in various settings [14]. A practical nurse, trained at a vocational school, works under the supervision of a registered nurse or physician. They provide basic nursing care, assist with daily activities, take vital signs, collect samples, administer medications under supervision, and provide emotional support to patients and families [15].

Data collection was carried out using the Slovak versions of the Basel Extent of Rationing of Nursing Care Revised (BERNCA-R) [16] and the Nursing Teamwork Survey (NTS) [17]. The tools in our study were distributed using the paper-and-pencil method. The first instrument was the BERNCA-R instrument designed to assess rationed nursing care [16]. The translation process followed the forward-backward method, ensuring linguistic accuracy that included the evaluation of both face and content validity of the tool [18]. Face validity was evaluated by seven nurses working in medical-surgical care units at the university hospital, who viewed the BERNCA-R

as a comprehensive instrument reflecting the competencies of Slovak nurses. They found all items relevant to measuring the prevalence of rationed nursing care. The validity of the content was evaluated by a panel of seven experts, including nurse managers from medical-surgical and intensive care units, as well as registered nurses and practical nurses from medical-surgical units. Using a four-point Likert scale, they rated each BERNCA-R item's relevance. The overall content validity index (S-CVI), calculated from the average of individual item content validity indices (I-CVI), was 0.97, indicating excellent validity. At the item level, expert agreement ranged from 0.91 to 0.97. On the basis of these findings, no adjustments were made to the instrument, as the expert panel deemed all BERNCA-R items relevant.

The BERNCA-R instrument comprises 32 specific items that cover dependent and independent nursing activities that reflect the competencies of nurses and practical nurses in the hospital setting. Nurses rate their ability to provide these activities (e.g., How often in your last 7 working days did it happen that you could not perform necessary sponge baths for patients?) on a five-point frequency scale (0 – not necessary; 1 – never; 2 – rarely; 3 – sometimes; 4 – often) based on the last seven working shifts. The reliability of BERNCA-R was evaluated using the Cronbach alpha coefficient (α), yielding 0.959 confirming the reliability of the tool to measure rationed nursing care among registered and practical nurses.

The second instrument was the NTS designed to assess the level of teamwork [17]. The translational process of the NTS instrument is documented elsewhere [19] and adhered to the forward-backward method. Based on Salas' teamwork theory, the Nursing Teamwork Survey (NTS) gauges teamwork levels in acute care settings from the perspectives of various members of the nursing team, including registered nurses, practical nurses, nurse leaders, and nurse aids. With 33 items, the NTS is categorized into five subscales aligning with Salas' teamwork theory: trust (7 items), team orientation (9 items), support (6 items), shared mental models (7 items), and team leadership (4 items). Respondents must indicate the frequency with which they can characterize their team's behavior according to each statement using a frequency scale (rarely – 1; 25% of the time – 2; 50% – 3; 75% of the time – 4; always – 5). The instrument provides a comprehensive evaluation of various aspects of work within nursing teams, focusing primarily on subjective assessments of team effectiveness or inefficiency. It enables respondents to evaluate their contributions to the team, team leadership, mutual support, clarity of instructions and communication, team adaptability, distribution of workload, team unity, and the existence of respect and trust among team members. Additionally, it assesses the team's capacity for innovation, responses to constructive feedback, perceptions of strengths and weaknesses, conflict resolution, and the quality of feedback received. The tool includes negatively worded items that require recoding, and higher scores indicate a more positive assessment of teamwork. The α for the NTS was 0.870.

The questionnaire set also included specific sociodemographic data, including unit type, education, job position, age, number of hours worked, and number of patients (including admitted and discharged patients).

Data analysis was performed using the SPSS statistical program, version 25.0. Descriptive statistics, including cardinality (n) and percentage (%), were used to describe the study sample. Additionally, numbers, means, standard deviations (SD) and % were used to present sample characteristics (sociodemographic presentation of the studied group) and the information on rationed nursing care activities, and level of teamwork.

Parametric tests were chosen for further analysis, guided by the results of the Kolmogorov-Smirnov normality test ($p \geq 0.200$), revealing a normal distribution of the data. The Pearson correlation coefficient was applied to investigate the relationships between the prevalence of rationed nursing care and the level of teamwork. Multiple regression analysis was performed to explore predictors of perceived rationed nursing care among nurses, including the overall score of the BERNCA-R and individual NTS subscales. All results were evaluated at a significance level of $p < 0.05$.

RESULTS

The sample consisted of 206 registered nurses and practical nurses with an average age of 38.27 years (SD = 11.16). Most of the respondents were nurses (148; 71.4%) working in surgical settings (104; 50.5%) in a job position as a nurse without specialization (76; 37.1%), had secondary vocational education (64; 31.1%) and worked between 30 and 40 hours a week (164; 79.6%). Nurses cared for 12.47 (SD = 6.68) patients on average during their shift and admitted around 3.29 (SD = 2.61) while discharged 3.09 (SD = 1.99).

In this study, the prevalence of rationed nursing care was 68.7% (Tab. 1), with an average score of 2.11 (SD = 0.65) indicating the occurrence of this phenomenon from rarely to occasionally. Alarmingly, 99.5% of nurses in our study reported withholding at least one or more nursing care activities during their previous seven working shifts. Additionally, nurses withheld on average 11.4 nursing care activities. The most frequently omitted nursing activity was having a necessary conversation with a patient or family (76.1%; 2.20 ± 0.92). When considering a threshold of 4 (often rationed missed), nurses rationed the most restraining confused patients instead of watching them (18.5%).

Tab. 1. Rationed nursing care based on the BERNCA-R instrument

No.	Items	N	M	SD	% of responses of 0 (NA)	% of responses of 1 (never)	% of responses of 2 (rarely)	% of responses of 3 (sometimes)	% of responses of 4(often)
1	Sponge bath	203	2.00	0.93	0.0	32.0	47.8	8.9	11.3
2	Partial sponge bath	206	1.97	0.91	0.0	36.4	37.4	19.4	6.8
3	Skin care	205	1.97	0.92	0.0	35.6	41.0	14.6	8.8
4	Oral hygiene	204	2.07	0.94	0.0	31.9	37.7	21.6	8.8
5	Dental hygiene	205	2.25	0.99	0.0	24.4	41.5	19.0	15.1
6	Assistance to patient who are unable to eat independently	206	1.99	0.92	0.0	35.4	37.4	19.9	7.3
7	Mobilize patients	206	2.11	0.94	0.0	29.1	40.8	19.9	10.2
8	Change position of patients	206	1.99	0.90	0.0	34.0	40.3	18.4	7.3
9	Change patients´ bed linen strongly soiled	206	1.97	0.89	0.0	35.0	40.3	18.0	6.8
10	Offer emotional or psychological support	205	2.14	0.95	0.0	29.3	37.1	23.9	9.8
11	Have necessary conversation with a patient or family	205	2.20	0.92	0.0	23.9	42.4	23.4	10.2
12	Inform patients about imminent tests or planned therapies	202	2.05	0.94	0.0	32.7	38.6	19.8	8.9
13	Using diapers instead of toilet or continence training	202	2.13	0.89	0.0	27.2	39.6	26.2	6.9
14	Inserting permanent catheter instead of toilet or continence training	202	2.15	1.07	0.0	35.6	29.7	18.8	15.8
15	Activating or rehabilitating care	204	2.17	0.94	0.0	26.5	41.2	21.6	10.8
16	Patient and/or family education	202	2.08	0.96	0.0	31.7	39.6	17.8	10.9
17	Fully prepare patients or their families for hospital discharge	204	2.06	1.01	0.0	35.3	34.8	18.1	11.8
18	Monitor patients as closely as had been prescribed by physicians	206	2.02	1.03	0.0	39.8	30.6	17.0	12.6
19	Monitor patients as closely as felt it was necessary	205	1.98	0.95	0.0	36.1	40.0	13.7	10.2
20	Restraining confused patients instead of watching them	205	2.33	1.04	0.0	24.4	37.1	20.0	18.5
21	Sedating confused patients instead of watching them	200	2.16	0.91	0.0	27.0	37.5	28.0	7.5
22	Measures to assist patients with unforeseen sudden or acute changes in status	201	2.14	1.03	0.0	32.8	33.8	19.4	13.9
23	Administer a prescribed medication and/of infusion	203	2.11	1.09	0.0	39.4	25.1	20.2	15.3
24	Wound dressing for patients	205	2.10	1.02	0.0	34.6	33.7	19.0	12.7
25	Prepare patients for tests or therapies	204	2.03	0.99	0.0	35.3	38.7	13.7	12.3
26	Keep patients waiting longer than 5 minutes	206	2.20	0.95	0.0	26.2	37.9	25.2	10.7
27	Adequate hand hygiene	206	2.17	1.01	0.0	30.1	35.9	20.9	13.1
28	Comply with necessary disinfection measures	206	2.18	0.99	0.0	28.6	36.9	21.8	12.6
29	Have enough time to study the care plans	205	2.27	1.01	0.0	25.4	38.0	21.0	15.6
30	Ascertain needs assessment for newly admitted patients	205	2.19	1.01	0.0	29.8	34.1	23.4	12.7
31	Set up patients´ care plans	206	2.24	0.97	0.0	25.2	38.3	23.3	13.1
32	Document and evaluate the care carried out for patients	206	2.20	1.05	0.0	31.6	33.0	19.4	16.0

Legend: M – mean, SD – standard deviation

Tab. 2. Predictors of rationed nursing care

Variables	Mean score of rationed nursing care activities				
	Unstandardized Coefficients		Standardized Coefficients	t	p
	β	SE	β		
Constant - Model 1 (R = 0.202; R square = 0.041; Adj R2 = 0.017; SE of estimate = 0.654; df = 205; F = 1.698; p = 0.137)	2.566	0.472		5.436	<0.001
NTS 1 Trust	-0.102	0.100	-0.100	-1.021	0.309
NTS 2 Team orientation	-0.163	0.061	-0.210	-2.676	0.008
NTS 3 Backup	0.110	0.113	0.092	0.974	0.331
NTS 4 Shared mental model	0.030	0.131	0.023	0.230	0.818
NTS 5 Team leader	-0.055	0.092	-0.056	-0.598	0.550

*p ≤ 0.05; β – standardized beta coefficient, SE – standard error

DISCUSSION

The results of this study suggest that the occurrence of rationed nursing care is a relatively widespread phenomenon in selected hospitals in Slovakia. The prevalence of rationed nursing care in our study reached almost 70%, indicating a higher incidence of this phenomenon in district hospitals. In contrast, university and faculty hospitals showed a prevalence of around 40% in Slovakia [20], and the European region reported less than 30% [21,22]. It is concerning that a significant majority of nurses (99.5%) did not perform one or more nursing activities for their patients. Our results align with various studies conducted in European [23-25], American [26], and Asian settings [27]. However, the percentage of nurses neglecting one or more nursing activities for patients could be

even higher, approaching almost 100% [1]. Although the level of rationed nursing care in our study was relatively low, it was comparable to the results of both national and international studies [23-25]. Furthermore, the extent of undone nursing activities varied across different countries; for example, Czech nurses neglected approximately one-third of nursing activities [22], American nurses skipped approximately 1/2 to 3/4 of nursing activities [28,29], and in Slovak university and faculty hospitals, it was less than half [30]. The current study conducted in district hospitals supports these findings from Slovakia.

Analyzing the most frequently rationed nursing activities, it becomes evident that they predominantly involve independent nursing tasks such as patient supervision or communication with patients and their families. Our results align with observations from both national and international studies [23-26,31]. In Slovakia, the predominant biomedical model of care, which emphasizes early diagnosis of the disease and effective therapy, still dominates. Consequently, nursing activities are primarily centered on the prescribed treatment plan, with less attention given to addressing psychosocial and spiritual needs.

Our investigation assessed teamwork levels using the comprehensive score from the NTS tool and its individual subscales. The overall score indicates that the perception of optimal teamwork occurred almost 75% of the time during the last nursing working shift, as reported by nurses in our study. A recent Slovak study [19] that focused on teamwork investigation found that registered and practical nurses reported a more positive perception of teamwork in acute care facilities. Similarly, Australian nurses [32], American nurses [7], and Turkish nurses [33] achieved higher scores in the assessment of teamwork. Examining specific subscales of the NTS, the Shared mental model was the highest rated in our study, aligning with findings from another research [7,32,33]. This evaluation signifies well-established processes for patient handover, fostering positive relationships within the nursing team. On the other hand, Team orientation received the lowest score in our study, consistent with results from national and international studies [7,17,32,33]. This suggests less effective conflict resolution, insufficient feedback provision and acceptance, and a tendency to prioritize personal goals over team objectives.

This study reaffirmed the statistically significant connection between rationed nursing care and the level of teamwork, particularly on all NTS subscales, including the overall teamwork score. In particular, this is the first exploration of the association between rationed nursing care and perceived levels of teamwork as reported by nurses. Limited studies, to the best of the authors' knowledge, have delved into this relationship from the standpoint of registered nurses. These investigations showed that an increase in teamwork scores was correlated with a decrease in unfinished nursing care estimates [7,10,11,34].

In the international arena, teamwork has been a predictive factor for rationed nursing care estimates. The overall NTS score accounted for between 16.0 and 24.0 percent of the variance in rationed nursing care [11,34]. Additionally, higher teamwork scores were associated with reduced estimates of rationed nursing care in acute care settings [35,36]. Interestingly, in our study, teamwork did not predict rationed nursing care estimates according to nurse reports. In our study, there could be a possible explanation for regression coefficients not being significant despite significant correlations. The regression analysis assumes that the independent variables are not highly correlated with each other. If there is multicollinearity among the independent variables, it can inflate standard errors and reduce the statistical power of the regression analysis, making it difficult to detect significant effects [37].

In general, despite the confirmed link between rationed nursing care estimates and teamwork levels, this relationship remains underexplored and underreported in the nursing field [34]. Existing evidence suggests that effective teamwork and communication are related to lower estimates of rationed nursing care, which warrants further research in these areas [35].

Although the design of the cross-sectional study offers valuable initial insights into nurses' views on rationed nursing care and teamwork levels, it is essential to approach these findings with caution due to inherent limitations. These include potential biases such as selection bias and social desirability bias. Although the study provides valuable information, the small sample size limits the generalizability and robustness of the findings. Future research with larger and more diverse samples would help address these limitations and provide a more comprehensive understanding of the relationship between rationed nursing care and teamwork in acute care settings.

CONCLUSIONS

Based on the study results, it can be concluded that the perception of ideal teamwork among nurses in the study setting is generally high, and the majority of nurses reported effective teamwork during their shifts. The highest rated aspects of teamwork were Shared mental model and Backup, suggesting strong coordination and support within the team. Trust and leadership were also positively rated, albeit slightly lower. However, the Team orientation subscale received a comparatively lower rating, indicating potential areas for improvement in team cohesion and alignment.

Significant negative correlations were observed between teamwork and the extent of rationed nursing care, indicating that as teamwork improves, perceptions of rationed care decrease. However, the multiple regression analysis did not produce significant results in predicting rationed nursing care based on teamwork and its subscales. This suggests that, while there is a clear association between teamwork and reduced rationed care, other factors not captured in this analysis may also influence perceptions of rationed nursing care among nurses.

Ethical aspects

The study was approved by the institutional ethics committee (ref. 43/2022). Demographic data from participants in this study were processed according to the Regulation of the European Parliament and the EU Council

2016/679 of 27.04.2016 on the protection of persons in connection with the processing of personal data and the free movement of such data.

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