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Turkish Adaptation, Psychometric Validity and Measurement Invariance of the Reasons for Implicit Rationing of the Nursing Care Scale

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ABSTRACT

Aim: This study aimed to adapt the Reasons for Implicit Rationing of Nursing Care Scale into Turkish and evaluate its validity, reliability and measurement invariance among nurses in Türkiye.

Background: Implicit rationing of nursing care may compromise care quality and patient safety and is influenced by organizational, resource-related and communication factors. A culturally valid instrument is needed to identify the factors contributing to implicit rationing of nursing care within the Turkish healthcare context.

Design: A methodological, cross-sectional psychometric validation study.

Method: Data were collected between July and December 2025 from nurses working in a public hospital in Türkiye. The source population comprised 900 nurses and 411 nurses were included in the final sample using convenience sampling. Data were collected using the Personal Information Form and the Reasons for Implicit Rationing of Nursing Care Scale. Construct validity was examined using exploratory and confirmatory factor analyses on randomly divided samples. Convergent and discriminant validity and gender-based measurement invariance were assessed. Reliability was evaluated using Cronbach's alpha, McDonald's omega and the intraclass correlation coefficient.

Results: The Kaiser–Meyer–Olkin value was 0.936, indicating that the data were suitable for factor analysis. Exploratory factor analysis revealed a two-factor structure consistent with the original scale, explaining 74.30% of the total variance. Confirmatory factor analysis demonstrated acceptable model fit. Convergent validity was supported, whereas the heterotrait–monotrait ratio value indicated borderline discriminant validity. Measurement invariance across genders was largely supported at the configural, metric and scalar levels. The scale demonstrated high internal consistency and temporal stability, with a Cronbach's alpha value of 0.941, a McDonald's omega value of 0.932 and an intraclass correlation coefficient value of 0.873.

Conclusion: The Turkish version of the Reasons for Implicit Rationing of Nursing Care Scale is a valid, reliable and gender-invariant instrument. It can be confidently used in Turkish clinical settings to assess factors contributing to implicit rationing of nursing care.

Summary

What Is Already Known About This Topic?

- Implicit rationing of nursing care occurs when necessary care is omitted due to organizational or resource constraints. Identifying contributing factors is essential for quality improvement and workforce planning.

What This Paper Adds?

- The Turkish version of the scale demonstrates excellent psychometric properties, including high internal consistency, temporal stability and factor structure validity. Measurement invariance across genders allows comparisons between male and female nurses.

The Implications of This Paper:

- The scale can assist nurse managers and healthcare administrators in identifying organizational and resource-related issues, developing targeted interventions and supporting evidence-based policy related to workforce planning and care quality.

1 | Introduction

Missed nursing care, recently introduced in the literature, pertains to the partial or complete omission or delay of any component of care that is required to be administered to the patient (Kalisch et al. 2009). This concept is defined as the partial implementation, complete omission, or neglect of nursing care that should be provided to the patient for specific or unspecified reasons (Elmaoğlu and Özdemir 2022). Additionally, missed nursing care is considered a type of error that threatens patient safety and is addressed under errors of neglect/omission. Care is a fundamental concept at the heart of the nursing profession and one that should not be neglected (Güleşen 2022). However, missed nursing care is also considered an important indicator for assessing the quality of nursing care and patient safety (Al-Faouri et al. 2021).

The concept of implicit nursing care restriction was first addressed by Schubert and colleagues in a 2007 study conducted in Switzerland to assess the level of nursing care in acute care institutions. In this study, the researchers defined the phenomenon of implicit nursing care restriction and developed the Basel Extent of Rationing of Nursing Care Instrument (BERNCA) to measure this phenomenon. Later, Jones and colleagues adapted the BERNCA scale to the context of the United States healthcare system and as a result of a validity and reliability study conducted on surgical nurses in 2014, the Perceived Implicit Rationing of Nursing Care (PIRNCA) scale was developed (Friganović 2021).

Restrictions on nursing care are addressed in two ways: overt (external) and covert (hidden) (Kalánková et al. 2020). The difference between explicit and implicit constraint in nursing care lies primarily in the approach to decision-making regarding resource allocation and the provision of nursing care. Explicit constraint in nursing care means that decisions regarding resource allocation and nursing care are made openly and publicly. Implicit constraint in nursing care, on the other hand, is a situation where decisions regarding the allocation of nursing care are made in a non-transparent or non-public manner. Implicit constraint in nursing care refers to the postponement, incomplete implementation, or complete failure to perform necessary nursing interventions due to resource shortages. In this context, fundamental care processes such as nursing assessment, care planning, problem identification, implementation of nursing interventions and evaluation of care can be affected (Jędrzejczyk et al. 2023).

The concepts of tasks left undone and implicit rationing of nursing care have historically been employed to describe the failure to deliver essential nursing care due to inadequate nursing resources. Although these conceptual models differ in their explanations of the causes of the phenomenon and the specific elements of care that are jeopardized, they share commonalities and collectively refer to the overarching concept of unfinished care (Bassi et al. 2020). Missed nursing care is not the only term used to describe the failure to provide standard and necessary nursing care. In the literature, different concepts, such as "rationing of nursing care" or "unfinished care," have also been used to define this phenomenon (Zeleníková et al. 2019).

Kalisch examined this concept through a qualitative study. Through focus group interviews with nurses, clinical secretaries and nurse aides from two distinct hospitals, nine fundamental areas of care were identified. These areas include delayed and forgotten nutrition, hygiene, intake and output recording, emotional support, patient education, positioning, discharge planning and surveillance (Elmaoğlu and Özdemir 2022). Studies have shown that missed nursing care (MNC) is not a problem unique to Turkey's healthcare system but remains a significant issue in healthcare systems worldwide. It has been reported that the global prevalence rate of MNC ranges from 55% to 98% (Kenter and Birgili 2025). In addition, a study conducted by Kalisch et al. in 2011 indicated that staff shortages and issues related to the management of personnel resources are among the most common reasons for MNC (Al-Faouri et al. 2021).

The International Council of Nurses (ICN), in its 2012 report, emphasized that insufficient nursing staffing poses serious risks to patient safety and the quality of care. The lack of adequate nursing staff makes it difficult for nurses to provide all patients with the necessary care, implicitly leading to limitations in care (Zeleníková et al. 2023). During this process, nurses are forced to prioritize care interventions due to the limited resources available; some care activities may be postponed, reduced, or skipped entirely (Yuwanto et al. 2023).

However, due to factors such as staff shortages, time constraints, increased workload and resource deficiencies in the delivery of healthcare services, some necessary care practices may be delayed, left incomplete, or completely omitted (Friganović 2021). Consequently, nurses experience stress, develop low self-esteem and feel guilty and inadequate. Consequently, their satisfaction and job fulfilment decrease, leading to an increased intention to leave their jobs (Güleşen 2022).

Nurses play a crucial role in the treatment of patients. The quality of nursing care that patients receive affects both their

recovery and long-term health outcomes (Güleşen 2022). The inability to meet the care required by the patient leads to negative outcomes for both nurses and patients. This situation lowers the quality of care and threatens patient safety. In the literature, missed nursing care has been reported to be associated with adverse clinical outcomes, such as prolonged hospital stays, increased hospital-acquired infections and more pressure ulcers (Kenter and Birgili 2025).

The theoretical basis of implicit rationing of nursing care can be understood within the Missed Nursing Care framework, which explains omitted or delayed nursing care as arising from constraints in available resources and care delivery processes. When staffing, time, material resources, or team communication are insufficient, nurses may be required to prioritize competing care demands, resulting in some necessary nursing activities being delayed, reduced, or omitted (Kalisch and Lee 2010; Griffiths et al. 2018).

The mechanisms by which the nurses' work environment contributes to negative outcomes for both patients and nurses have not been sufficiently investigated. Delaying implicit nursing care is an intermediate step linking nurses to the quality of outcomes for both patients and nurses and is a consequence of prioritizing healthcare measures within the patient group being cared for by nurses. These measures involve assessing healthcare needs, identifying problems, planning healthcare, implementing interventions, evaluating those implemented and assessing patients' conditions accordingly (Friganović 2021).

Increased transparency of results has placed significant pressure on nursing managers to ensure high-quality nursing care. As these pressures have grown, there have been urgent calls for change to transform the hospital patient care environment (Gravlin and Bittner 2010). There is limited research on missed nursing care (Tubbs-Cooley et al. 2015). Assessing the reasons for missed nursing care using reliable and standardized measurement tools is crucial for enhancing patient outcomes and basing nursing workforce planning on scientific principles. Conducting this assessment in a culturally valid manner facilitates the generation of comparable data across health systems and aids in the monitoring of care quality. There are a limited number of studies in the current literature regarding the validity and reliability characteristics of the scale. More research is needed to evaluate the psychometric properties of the scale in different samples and cultural groups. Establishing the validity and reliability of this scale in Turkish will significantly contribute to addressing this gap in the field of nursing care. Accordingly, this study aimed to adapt the Reasons for Implicit Rationing of Nursing Care Scale into Turkish and evaluate its validity, reliability and measurement invariance among nurses in Türkiye.

1.1 | Hypotheses of the Study

H1. *Is the Reasons for Implicit Rationing of Nursing Care-TR a valid measurement tool?*

H2. *Is the Reasons for Implicit Rationing of Nursing Care-TR a reliable measurement tool?*

H3. *Does the Reasons for Implicit Rationing of Nursing Care-TR have measurement invariance?*

2 | Methods

2.1 | Research Design

This study is a methodological research conducted to evaluate the validity and reliability of the Turkish version of the Reasons for Implicit Rationing of Nursing Care Scale. The adaptation and psychometric evaluation process was reported with reference to the COSMIN reporting guideline for studies on measurement properties (Gagnier et al. 2025).

2.2 | Research Setting and Participants

This methodological study was conducted with nurses working at a public hospital in Türkiye between July and December 2025. At the time of data collection, 900 nurses were employed at the hospital and constituted the source population of the study. A convenience sampling method was used. Nurses who met the eligibility criteria, were accessible during the data collection period and voluntarily agreed to participate were invited to the study. In validity and reliability studies, it is recommended to include at least 5–10 participants per scale item when determining the sample size (Boateng et al. 2018). Considering that the scale used in this study consists of 10 items, the recommended minimum sample size was calculated as 50–100 participants. However, in psychometric analyses, sample sizes of 300 or more are considered to have a "good" level of adequacy (Tabachnick 2007; DeVellis and Thorpe 2021; Field 2024).

The inclusion criteria were currently working as a nurse, providing direct patient care, having at least one year of professional experience and voluntarily agreeing to participate in the study. The exclusion criteria were being on extended leave, being temporarily assigned outside the clinical unit during the data collection period, or having worked in the current clinical unit for less than one year. From the source population, 450 nurses who met the eligibility criteria and agreed to participate completed the survey. During data screening, 39 questionnaires were excluded because they were incomplete or contained uniform responses across all scale items. Consequently, data from 411 nurses were included in the final analyses. To enhance the robustness of the construct validity assessment, the sample was randomly divided into two subgroups: data from 190 participants were utilized for exploratory factor analysis (EFA), whereas data from 221 participants were employed for confirmatory factor analysis (CFA).

2.3 | Data Collection Tools

2.3.1 | Personal Information Form

The instrument developed by the researchers comprised enquiries regarding the participant's age, gender, marital status, educational level, years of professional experience and the clinical unit in which they were employed.

2.3.2 | Reasons for Implicit Rationing of Nursing Care

Zeleníková et al. (2024) developed the scale to assess the structural and organizational factors that implicitly limit nursing care (Zeleníková et al. 2024). The scale comprises 10 items, each assessed using an 11-point Likert-type scale, ranging from 0 (an insignificant reason) to 10 (the most important reason). Higher scores suggest a stronger perception of the reasons for the implicit restriction of care.

In the original study, the construct validity of the scale was assessed through exploratory factor analysis (EFA), revealing a two-factor structure. These factors were designated as "Communication and Material Resources" and "Labour Resources." The first factor comprised six items, whereas the second factor included four items. The internal consistency reliability of the scale was notably high, with Cronbach's alpha coefficient for the total scale reported as $\alpha = 0.908$. For the subdimensions, the coefficients were $\alpha = 0.914$ for Communication and Material Resources and $\alpha = 0.858$ for Labour Resources.

2.3.3 | Language Adaptation Process

The Turkish adaptation and content validity of The Reasons for Implicit Rationing of the Nursing Care Scale were carried out in accordance with internationally recognized cross-cultural adaptation principles (Wild et al. 2005). Prior to commencing the process, written permission was secured from the developer of the scale. The original English version of the scale underwent translation into Turkish by four independent translators proficient in both languages. The translations were subsequently compared and a consensus text was formulated by the research team. This consensus text was then back-translated into English by four independent translators who were unfamiliar with the original scale. The back-translated texts were compared with the original version to evaluate semantic and conceptual equivalence and necessary adjustments were implemented. In the final stage, the Turkish version was assessed by field experts for clarity, cultural appropriateness and content, and the comprehensibility of the items was tested through a pilot application. As a result of this process, the linguistic and content validity of the Turkish version of the scale was deemed sufficient.

2.3.4 | Content Validity Expert Panel ($N = 12$)

To assess the content validity of the Turkish version of the scale, a panel of experts was convened, comprising 12 specialists with academic experience in nursing care and holding at least a doctoral degree. The panel included faculty members from various nursing disciplines: five in fundamentals of nursing, three in psychiatric nursing, two in internal medicine nursing and two in surgical nursing. Evaluation forms were distributed to the experts via email, requesting them to assess each item based on clarity, cultural appropriateness, conceptual equivalence and relevance. The expert evaluation was conducted using the Davis technique, with a 4-point rating scale (1 = not appropriate, 2 = partially appropriate, 3 = appropriate and 4 = completely appropriate) (Davis 1992).

The item content validity index (I-CVI) was calculated for each item. The average I-CVI value for the scale was 0.84. The scale content validity index (S-CVI/Ave), which was calculated to determine the overall content validity of the scale, was 0.92. In the literature, an I-CVI value of ≥ 0.78 and an S-CVI/Ave value of ≥ 0.90 are considered indicators of sufficient content validity (Lenz 2010). The findings suggest that the Turkish version of the scale demonstrates a satisfactory level of content validity. Following expert feedback, improvements were made to enhance the clarity of expression in certain items and terminological adjustments were implemented to align with the cultural context. Consequently, it was determined that the Turkish version of the scale successfully achieved content validity.

2.3.5 | Pilot Study ($N = 50$)

In the second phase of the cross-cultural adaptation process, a pilot study was conducted to assess the comprehensibility of the pre-final Turkish version of the scale, evaluate the feasibility of the data collection process and analyse the response characteristics of the items. The pilot sample comprised 50 nurses with characteristics similar to those of the main research sample. Within the framework of the pilot study, data were collected face-to-face using the pen-and-paper method. Participants were instructed to respond to all scale items thoroughly; following the implementation, the comprehensibility, clarity of expression and cultural appropriateness of the items were evaluated. It was determined that the average time required to complete the scale was approximately 10–15 min. Participants did not report any significant difficulties in understanding the items. Based on the findings of the pilot study, no revisions were deemed necessary for the items and the scale form was retained in its current state. Because the pilot participants met the same eligibility criteria as the main sample and no item revisions were made after the pilot study, the data obtained from the pilot study were retained and incorporated into the final analyses.

2.3.6 | Data Collection

Data were collected through face-to-face interviews with nurses employed at the hospital using the paper-and-pencil method. After providing essential information regarding the study's purpose and scope, survey forms were distributed to the participants. Nurses were informed of their right to withdraw from the study at any time and assured of the confidentiality of their identities. It was explicitly stated that participation in the study was entirely voluntary. The administration of the surveys required an average duration of 10–15 min. To evaluate temporal stability, the scale was administered to a subgroup of 40 nurses on two occasions. The second administration was conducted three weeks after the initial administration. Test–retest reliability was evaluated by calculating the intraclass correlation coefficient (ICC) based on the scores obtained from the two administrations.

2.4 | Data Analysis

Data were analysed using SPSS version 27 and AMOS version 22. Descriptive statistics included frequencies (n), percentages (%), means (M) and standard deviations (SD). Results with p values below 0.05 were considered statistically significant ($p < 0.05$).

2.5 | Construct Validity

Construct validity was evaluated using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In the EFA, the principal axis factoring method was employed to identify the latent factor structure, with the varimax rotation technique utilized to improve the interpretability of the factors. Factors with eigenvalues exceeding 1 were regarded as subdimensions. The appropriateness of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) coefficient and Bartlett's test of sphericity. In the CFA, the objective was to validate the model derived from the EFA. Model fit was assessed using the χ^2/df, CFI, GFI, IFI, TLI, RMSEA and SRMR indices.

2.6 | Convergent and Discriminant Validity

Convergent validity was assessed by calculating the composite reliability (CR) and average variance extracted (AVE) values. Discriminant validity was evaluated using the heterotrait–monotrait ratio (HTMT).

2.7 | Measurement Invariance

Gender was selected as the grouping variable to determine whether the Turkish version of the scale measured the construct equivalently among female and male nurses. The purpose of this analysis was not to compare gender differences in implicit rationing of nursing care but to establish measurement equivalence before any potential between-group comparisons.

In this analysis, configural, metric, scalar and strict invariance models were developed. For model comparisons, ΔCFI and ΔRMSEA values were considered.

2.8 | Reliability

The internal consistency of the scale was assessed using Cronbach's alpha and McDonald's omega (ω) coefficients. Test–retest reliability was evaluated using the intraclass correlation coefficient (ICC). The threshold values recommended in the literature were used as the standard for interpreting these reliability coefficients.

2.9 | Ethical Considerations

All phases of the study were conducted in accordance with the ethical principles delineated in the Declaration of Helsinki. Written approval for the research procedures was secured from the Scientific Research and Publication Ethics Committee of Muş University (decision date: 08.05.2025; decision no: 193253). Furthermore, the requisite research permit was obtained from the institution where the study was to be conducted. Written authorisation was also acquired from the scale developers for the adaptation of the scale into Turkish. Prior to completing the questionnaire, written informed consent was obtained from the participating nurses. The collected data were stored on a secure computer accessible only to the responsible researcher.

3 | Results

The characteristics of the study participants are detailed in Table 1.

3.1 | Construct Validity

The exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted on separate samples, revealing a homogeneous distribution of characteristics across these groups ($p > 0.05$). To assess the construct validity of the scale, EFA was initially performed. The Kaiser-Meyer-Olkin (KMO) value was 0.936, indicating the data's suitability for factor analysis. The EFA results revealed a two-factor structure, consistent with the original scale. The factor loadings for the " Communication and Material Resources " factor ranged from 0.775 to 0.916, whereas those for the "F2" factor ranged from 0.748 to 0.902. This two-factor model accounted for 74.30% of the total variance (Table 2). CFA was subsequently conducted to confirm the two-factor structure identified by the EFA. The CFA results indicated standardized factor loadings ranging from 0.73 to 0.80 for the "Communication and Material Resources "subdimension and from 0.75 to 0.87 for the " Labour Resources " sub-dimension (Figure 1). The goodness-of-fit indices for the two-factor model were as follows: X2/df = 4.726, GFI = 0.910, CFI = 0.951, IFI = 0.950, TLI = 0.932, RMSEA = 0.077 and SRMR = 0.046 (Table 3).

3.2 | Convergent and Discriminant Validity

Convergent and discriminant validity of the scale were evaluated using CR, AVE and HTMT. For F1, the CR and AVE values were 0.85 and 0.58, respectively. For Labour Resources, the CR and AVE values were 0.92 and 0.67, respectively. The HTMT value between Communication and Material Resources and Labour Resources was calculated as 0.90 (Table 4).

3.3 | Measurement Invariance

The results of the multi-group CFA, conducted to assess measurement invariance across genders, are presented in Table 5. For M1, the CFI and RMSEA values were 0.939 and 0.08, respectively. For M2, the CFI and RMSEA values were 0.938 and 0.081. For M3, the CFI and RMSEA values were 0.938 and 0.08, whereas for M4, they were 0.926 and 0.081. In examining the comparison of nested models, the ΔCFI values for M2-M1,

TABLE 1 | Characteristics of the participants (*N*: 411).

Variables	Group		Test statistic and *p*
	EFA sample (*n*: 190) *n* (%)	CFA sample (*n*: 221) *n* (%)	
Age			
< 30 age	108 (56.8)	113 (51.1)	$X^2 = 1.401$
30–45 age	65 (34.3)	84 (38)	$p = 0.496$
> 45 age	17 (8.9)	24 (10.9)	
Gender[a]			
Female	105 (55.3)	116 (52.5)	$p = 0.620$
Male	85 (44.7)	105 (47.5)	
Marital status[a]			
Single	88 (46.3)	91 (41.2)	$p = 0.319$
Married	102 (53.7)	130 (58.8)	
Education level			
High school	13 (6.8)	13 (5.9)	$X^2 = 1.933$
Bachelor's degree	133 (70)	168 (76)	$p = 0.380$
Graduate degree	44 (23.2)	40 (18.1)	
Professional experience			
1–5 years	72 (37.9)	80 (36.2)	
5–10 years	80 (42.1)	90 (40.7)	$X^2 = 2.632$
11–15 years	18 (9.5)	32 (14.5)	$p = 0.452$
> 15 years	20 (10.5)	19 (8.6)	
Clinical unit			
Medical unit	55 (28.9)	49 (22.2)	
Surgical unit	33 (17.4)	43 (19.5)	$X^2 = 4.679$
Intensive care unit	26 (13.7)	44 (19.9)	$p = 0.322$
Emergency department	34 (17.9)	41 (18.6)	
Other (including outpatient clinics, operating theatre, dialysis, psychiatry, and obstetrics and gynaecology units)	42 (22.1)	44 (19.9)	

[a]Fisher's exact chi-square test.

M3-M2 and M3-M4 were −0.001, 0.000 and −0.010, respectively. The ΔRMSEA values for M2-M1, M3-M2 and M3-M4 were 0.001, −0.001 and 0.001, respectively.

3.4 | Reliability

The reliability findings of the scale are presented in Table 6. The Cronbach's alpha, McDonald's ω and ICC values for the Communication and Material Resources sub-dimension were 0.872, 0.856 and 0.840, respectively. For the Communication and Material Resources sub-dimension, the Cronbach's alpha, McDonald's ω and ICC values were 0.923, 0.914 and 0.852, respectively. The Cronbach's alpha, McDonald's ω and ICC values for the overall scale were 0.941, 0.932 and 0.873, respectively.

4 | Discussion

This study aimed to evaluate the validity, reliability and measurement invariance of the Turkish version of the Reasons for Implicit Rationing of Nursing Care Scale. The findings supported all three research hypotheses: the Turkish version of the scale demonstrated validity (H1), reliability (H2) and measurement invariance across gender (H3). The preserved two-factor structure, acceptable model fit and evidence of

TABLE 2 | Exploratory factor analysis results for the turkish version of the reasons for implicit rationing of nursing care scale.

Scale items	Factor loadings	
	Factor 1: communication and material resources	Factor 2: labour resources
1. Inadequate number of staff	0.906	
2. Deterioration of the condition of a patient	0.916	
3. Unexpected patient admission and discharge	0.821	
4. Inadequate number of assistive personnel	0.775	
5. Inadequate hand-off from the previous shift or from another department		0.748
6. Supplies/equipment not available when needed or not functioning properly		0.771
7. Lack of cooperation and/or help from team members		0.902
8. Communication problems within the nursing team		0.871
9. Communication problems with doctors in the department		0.886
10. Nursing assistant did not communicate that planned activities of nursing care were not provided		0.859
KMO = 0.936 Bartlett's test of sphericity: 3167 (45), $p < 0.001$ The total variance explained was 74.3%.		

Note: Exploratory factor analysis.

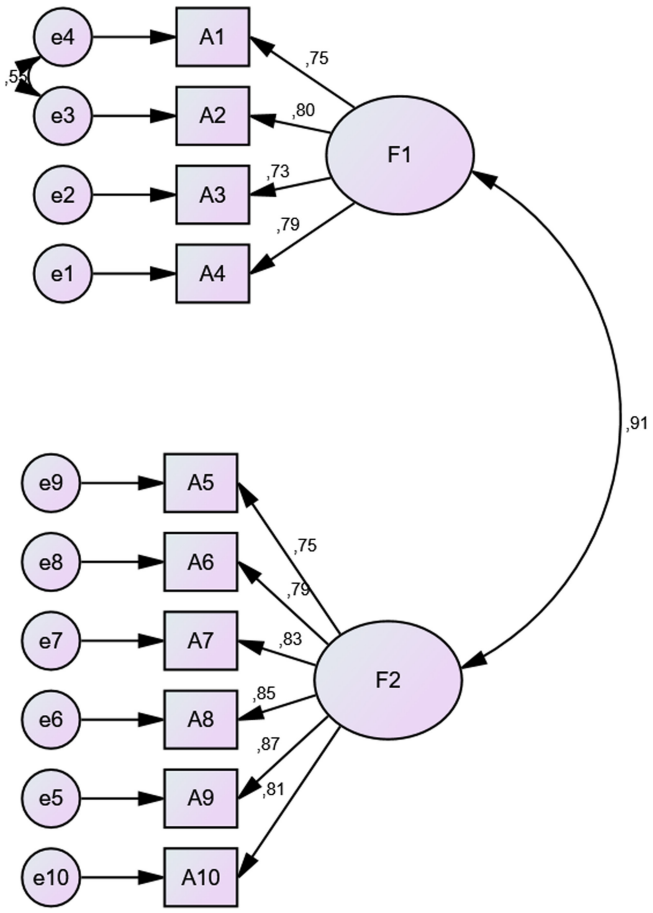

FIGURE 1 | Path diagram of *Reasons for Implicit Rationing of Nursing Care Scale* Turkish version.

TABLE 3 | Goodness-of-fit index values for the model.

Indices	Recommended value[a]	Observed value
X^2/df	< 5	4.726
CFI	> 0.90	0.951
GFI	> 0.90	0.910
IFI	> 0.90	0.950
TLI	> 0.90	0.932
RMSEA	< 0.08	0.077
SRMR	< 0.08	0.046

Abbreviations: CFI = comparative fit index; GFI = goodness-of-fit index; IFI = incremental fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; TLI = Tucker–Lewis index.
[a]Recommended values were based on Kline (2023). χ^2/df = chi-square/degrees of freedom.

TABLE 4 | Convergent and discriminant validity results.

Subscale	CR	AVE	HTMT (F1-F2)
Communication and material resources	0.85	0.58	0.90
Labour resources	0.92	0.67	

Abbreviations: AVE = average variance extracted; CR = composite reliability; HTMT = heterotrait–monotrait ratio of correlations.

TABLE 5 | Measurement invariance results across gender[a].

Model	CFI	RMSEA	Δ model	ΔCFI	ΔRMSEA
M1	0.939	0.08	—	—	—
M2	0.938	0.081	M2-M1	−0.001	0.001
M3	0.938	0.08	M3-M2	0.000	−0.001
M4	0.926	0.081	M4-M3	−0.010	0.001

[a]Multi-group CFA was conducted for male and female groups. M1: configural model; M2: metric model; M3: scalar model; M4: strict model.

TABLE 6 | Reliability findings.

Scale/subscale	Cronbach alpha	McDonald's ω	ICC = intraclass correlation coefficient
Communication and material resources	0.872	0.856	0.840
Labour resources	0.923	0.914	0.852
Total scale score	0.941	0.932	0.873

Note: α = Cronbach's alpha; ω = McDonald's omega; ICC = intraclass correlation coefficient. ICC values represent test–retest reliability coefficients.

convergent validity supported the validity of the Turkish version of the scale. The high internal consistency and test–retest reliability coefficients supported its reliability. In addition, the multi-group confirmatory factor analysis findings indicated that measurement invariance across gender was largely achieved. Therefore, the Turkish version of the scale can be considered a valid, reliable and gender-invariant instrument for assessing implicit reasons for the rationing of nursing care among nurses in Türkiye.

The results of the exploratory factor analysis revealed a distinct two-factor structure of the scale. This structure may help distinguish whether implicit rationing is mainly driven by resource and workload pressures or by communication and team-process challenges, thereby supporting more targeted managerial interventions at the unit level. The high KMO value suggests that the sample is highly appropriate for factor analysis (Kaiser and Rice 1974). The significance of Bartlett's test of sphericity indicates a sufficient level of correlation among the items, affirming the suitability of factor analysis (Dziuban and Shirkey 1974). The examination of the scale's factor structure shows that the total variance explained aligns with methodological expectations in the literature (Hair et al. 2010; DeVellis and Thorpe 2021). According to DeVellis and Thorpe, the proportion of explained variance, which reflects how well the items represent the underlying structure, is generally deemed adequate within the range of 50%–60% in the social and behavioural sciences (DeVellis and Thorpe 2021). The total variance ratio of 74.30% obtained in this study supports that the scale strongly represents the construct intended to be measured.

The fact that the factor loadings are above 0.70 in both dimensions is well above the commonly recommended threshold values of 0.40–0.50 in the literature, indicating that the items strongly represent the relevant component (Yong and Pearce 2013). The absence of cross-loadings supports a clear separation between the components. The two-factor structure obtained is consistent with the organizational characteristics and intra-team processes defined in the 'Missed Nursing Care Model' (Schubert et al. 2007; Kalisch and Lee 2010; Griffiths et al. 2018). The model frames implicit rationing of nursing care as a system-level phenomenon shaped by resource adequacy, workload and team collaboration (Zeleníková et al. 2024). Clinically, this distinction is important because resource-related constraints and team-process problems may require different organizational responses, such as staffing adjustments, workload redistribution, or interventions to improve handover and interprofessional communication.

The results of the CFA demonstrated that the two-factor model was validated with acceptable fit indices. The CFI, IFI and TLI values exceeded 0.90, meeting the acceptable fit criteria recommended in structural equation modelling. Additionally, the root mean square error of approximation (RMSEA) value fell within the suggested limits, further supporting the adequacy of the model-data fit (Kline 2023). The findings suggest that the structure identified through the exploratory analysis has been corroborated and the scale's structural integrity has been maintained. The validation of the factor structure within the current sample indicates consistency with the original scale's structure, demonstrating that its structural integrity has been preserved throughout the cultural adaptation process (Zeleníková et al. 2024).

The findings related to convergent validity reveal that, for both sub-dimensions, the composite reliability (CR) and average variance extracted (AVE) values exceed the recommended threshold levels. AVE values surpassing 0.50 indicate that the latent variable accounts for a greater proportion of actual variance relative to error variance, thereby confirming the achievement of convergent validity (Fornell and Larcker 1981). However, the HTMT value of 0.90 should be interpreted cautiously, as it is at the upper threshold commonly recommended for discriminant validity (Henseler et al. 2015). This borderline value may reflect the conceptual

proximity between resource- and workload-related pressures and communication- and team-process challenges in clinical practice. In the clinical practice environment, structural pressures related to human resources and workload, alongside communication-based challenges, may concurrently emerge (Kalisch and Lee 2010; Zeleníková et al. 2024). Nevertheless, the identification of these dimensions as distinct structures through factor analysis suggests that diverse organizational strategies could be considered in the planning of interventions (Griffiths et al. 2018; Zeleníková et al. 2024).

A significant methodological contribution of this study is that the measurement invariance of the scale by sex was tested. The original scale development study did not include an analysis of measurement invariance (Zeleníková et al. 2024). In this study, measurement invariance was assessed using multiple-group CFA. The results obtained showed that the ΔCFI values between the configural, metric and scalar models remained within the threshold limit. These findings support that measurement invariance was largely achieved according to the criteria recommended in the literature (Cheung and Rensvold 2002). Ensuring measurement invariance is crucial for the reliable comparison of latent means across groups, offering significant methodological assurance for the validity of between-group analyses in healthcare research. From a managerial perspective, this finding suggests that gender-based comparisons of implicit rationing reasons can be interpreted with greater confidence, supporting fairer and more evidence-informed workforce and organizational assessments.

Finding internal consistency coefficients above 0.70 indicates that the scale measures a homogeneous structure (DeVellis and Thorpe 2021). In this study, Cronbach's alpha coefficient for the total scale was determined to be 0.94, signifying a high degree of internal consistency. The adequacy of both Cronbach's alpha and McDonald's omega coefficients substantiates the reliability of the scale. Reporting the McDonald's omega coefficient offers a more robust measure of internal consistency by addressing the limitations associated with the tau-equivalence assumption of the alpha coefficient (Dunn et al. 2014). ICC values above 0.70 support the temporal stability of the measurement (Koo and Li 2016). When these findings are evaluated together, it can be said that the scale is a strong measurement tool in terms of both Cronbach's alpha and composite reliability (CR). These reliability findings suggest that the scale may be suitable for repeated use in clinical units to monitor organizational conditions related to implicit rationing and to evaluate changes following quality improvement or managerial interventions.

Taken together, these psychometric findings can be considered in relation to previous studies conducted in other cultural contexts. The present findings are most directly comparable with the original Czech scale development study by Zeleníková et al. (2024), in which the scale also demonstrated a two-factor structure and high internal consistency. In the original study, the two factors were labelled as communication and material resources and labour resources; similarly, the Turkish version preserved a two-factor structure, suggesting that these organizational and resource-related dimensions are also meaningful in the Turkish healthcare context. Although direct cross-cultural validation studies of the same scale are limited, related studies using the PIRNCA instrument in Slovakia and Croatia have shown that implicit rationing of nursing care is a measurable and relevant phenomenon across different healthcare systems (Kalánková et al. 2020; Friganović 2021). Together, these findings suggest that implicit rationing of nursing care is consistently associated with organizational, resource-related and team-process factors across cultural contexts.

In the context of the Turkish healthcare system, the density of the nursing workforce is relatively low compared to international standards; according to OECD data, in 2023, there were approximately 2.9 nurses per 1000 people in Turkey, which is below the OECD average (OECD 2025). The disparity in nurse density can result in an increased patient load per nurse within clinical environments, thereby exacerbating workload pressures. Concurrently, our findings reveal that implicit care rationing within the Turkish healthcare system is primarily influenced by two structural factors: resource and workload pressures and challenges related to communication and team processes. When assessed through the lens of the Missed Nursing Care Model, it becomes evident that implicit rationing of nursing care is more closely associated with staff planning, patient load, shift transitions and team communication dynamics, rather than individual inadequacies (Kalisch and Lee 2010; Zeleníková et al. 2024). This indicates that intervention strategies should not only address individual performance but also aim to enhance staffing plans, workload distribution and intra-team communication processes.

In practical terms, the Turkish version of the scale may be used by nurse managers and healthcare administrators to identify unit-level risk areas related to implicit rationing of nursing care. The resource and workload dimension may inform workforce planning, staffing decisions, shift organization and workload distribution, whereas the communication and team-process dimension may guide interventions aimed at improving handover, coordination and interprofessional communication. Repeated use of the scale may also support patient safety monitoring by helping institutions identify clinical units where necessary nursing care is at risk of being delayed, reduced, or omitted. Therefore, the scale may serve as a managerial and organizational assessment tool for identifying system-level barriers to safe, complete and high-quality nursing care.

4.1 | Limitations

This study has several limitations. First, it employed a cross-sectional design, which precluded causal interpretation. The data were obtained through self-reporting, potentially introducing social desirability bias. As the study was confined to a single hospital setting, caution is advised when generalizing the findings to diverse cultural and institutional contexts. Measurement invariance was assessed solely by sex and was not evaluated concerning other demographic and professional variables.

5 | Conclusion

This study demonstrates that the Turkish version of the Scale of Implicit Reasons for the Rationing of Nursing Care is a valid

and reliable measurement tool. The scale can be used to assess implicit reasons for the rationing of care in clinical settings and may contribute to nursing workforce planning and patient safety initiatives.

Author Contributions

Cemal Özalp: conceptualization; data curation; project administration; supervision. **Metin Tuncer, Cemal Özalp:** methodology. **Cemal Özalp, Abdullah Gerçek:** investigation; validation; formal analysis. **Cemal Özalp, Metin Tuncer:** visualization; writing – original draft. **Cemal Özalp, Abdullah Gerçek, Metin Tuncer:** writing – review and editing.

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Ethics Statement

Written approval for the research procedures was secured from the Scientific Research and Publication Ethics Committee of Muş Alparslan University (decision date: 08.05.2025; decision no: 193253). The study was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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