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PRODUCTIVITY ATTITUDES AND MISSED NURSING CARE AMONG HEALTHCARE PROFESSIONALS IN TÜRKIYE

TÜRKİYE'DE SAĞLIK PROFESYONELLERİNİN VERİMLİLİK TUTUMLARI VE KARŞILANMAYAN HEMŞİRELİK BAKIMI

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ABSTRACT
Objective: This study aimed to evaluate healthcare professionals' productivity attitudes and perceptions of missed nursing care, determine whether these scores differed according to demographic and professional characteristics, and examine the relationships between productivity dimensions and missed nursing care.
Methods: A descriptive cross-sectional design was used. The study included 1,591 healthcare professionals working in healthcare institutions primarily located in the Black Sea and Marmara regions of Türkiye. Data were collected using an online questionnaire comprising a demographic information form, the Nurses' Attitude Scale on Productivity, and the MISSCARE Survey. Descriptive statistics, Mann–Whitney U tests, Kruskal–Wallis tests, and Spearman's rank correlation analyses were performed. Internal consistency was assessed using Cronbach's alpha coefficients.
Results: The Nurses' Attitude Scale on Productivity and the MISSCARE Survey demonstrated high internal consistency, with Cronbach's alpha coefficients of .850, .974 for MISSCARE Part A, and .940 for MISSCARE Part B. Productivity and missed nursing care scores differed significantly according to selected demographic and professional characteristics, including marital status, education level, professional field, and employment position. Work environment conditions, workload distribution, staffing adequacy, material resources, communication, and employment responsibilities were prominent organizational factors associated with missed nursing care. More positive productivity attitudes were generally associated with fewer organizational reasons for missed care, although the direction and strength of these associations varied across scale dimensions.
Conclusion: Missed nursing care should be addressed as an organizational and managerial issue rather than solely as an individual performance problem. Evidence-based workforce planning, supportive leadership, adequate resource allocation, and stronger interprofessional communication may contribute to improving healthcare professionals' productivity attitudes and reducing missed nursing care.
Keywords: Healthcare Professionals, Missed Nursing Care, Patient Safety, Productivity, Workload

ÖZET
Amaç: Bu araştırmanın amacı, sağlık profesyonellerinin verimlilik tutumlarını ve karşılanmayan hemşirelik bakımına ilişkin algılarını değerlendirmek, bu puanların demografik ve mesleki özelliklere göre farklılaşıp farklılaşmadığını belirlemek ve verimlilik boyutları ile karşılanmayan hemşirelik bakımı arasındaki ilişkileri incelemektir.
Yöntem: Araştırma, tanımlayıcı ve kesitsel tasarımda yürütülmüştür. Çalışmaya, Türkiye'nin ağırlıklı olarak Karadeniz ve Marmara bölgelerinde bulunan sağlık kuruluşlarında çalışan 1.591 sağlık profesyoneli dahil edilmiştir. Veriler; demografik bilgi formu, Hemşirelerin Verimliliğe İlişkin Tutum Ölçeği ve MISSCARE Anketinden oluşan çevrim içi bir anket aracılığıyla toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, Mann–Whitney U testi, Kruskal–Wallis testi, Spearman sıra korelasyon analizi ve Cronbach alfa katsayıları kullanılmıştır.
Bulgular: Verimlilik Ölçeğinin Cronbach alfa katsayısı .850, MISSCARE Bölüm A'nın .974 ve Bölüm B'nin .940 olarak bulunmuş ve ölçeklerin yüksek iç tutarlılığa sahip olduğu belirlenmiştir. Verimlilik ve karşılanmayan hemşirelik bakımı puanlarının; medeni durum, eğitim düzeyi, mesleki alan ve çalışma pozisyonu gibi bazı demografik ve mesleki özelliklere göre anlamlı farklılık gösterdiği belirlenmiştir. Çalışma ortamı koşulları, iş yükü dağılımı, personel yeterliliği, malzeme kaynakları, iletişim ve çalışma sorumlulukları, karşılanmayan hemşirelik bakımıyla ilişkili başlıca örgütsel faktörler olarak öne çıkmıştır. Daha olumlu verimlilik tutumları genel olarak karşılanmayan bakımın örgütsel nedenlerinin daha düşük düzeyde

algılanmasıyla ilişkili bulunmuştur. Bununla birlikte, ilişkilerin yönü ve gücü ölçek boyutlarına göre farklılık göstermiştir.
Sonuç: Bulgular, karşılanmayan hemşirelik bakımının yalnızca bireysel performans sorunu olarak değil, aynı zamanda örgütsel ve yönetsel bir konu olarak ele alınması gerektiğini göstermektedir. Kanıta dayalı iş gücü planlaması, destekleyici liderlik, yeterli kaynak tahsisi ve güçlü meslekler arası iletişim, sağlık profesyonellerinin verimliliğini artırmaya ve karşılanmayan hemşirelik bakımını azaltmaya katkı sağlayabilir. Sağlık yöneticilerinin bu örgütsel göstergeleri düzenli izleme, riskleri erken belirleme ve iyileştirme uygulamalarında birlikte kullanmaları önerilmektedir.
Anahtar Kelimeler: Hasta Güvenliği, İş Yükü, Karşılanmayan Hemşirelik Bakımı, Sağlık Profesyonelleri, Verimlilik

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INTRODUCTION

Nursing care is a fundamental component of healthcare delivery and directly influences patient safety, clinical outcomes, and the overall quality of health services (Papathanasiou et al., 2024; Poku et al., 2022; Stavropoulou et al., 2022). Because nursing services constitute one of the largest components of the healthcare workforce, the productivity of professionals involved in care delivery also affects the operational efficiency and sustainability of healthcare institutions (Eastaugh, 2007; Jensen et al., 2022) . Productivity in healthcare is shaped not only by individual performance but also by staffing adequacy , workload, working conditions, organizational support, communication, and access to material resourc es.

Heavy workloads, insufficient staffing, limited resources, and ineffective teamwork may preve nt necessary nursing care from being delivered at the required time. Missed nursing care refers to essen tial patient care activities that are omitted, delayed, or only partially completed (Kalisch & Williams, 2 009). It has been associated with patient safety risks, reduced care quality, prolonged hospital stays, lo wer patient satisfaction, emotional exhaustion, and decreased professional well-being among healthcar e workers (Chaboyer et al., 2021; Imam et al., 2023; Maghsoud et al., 2022). These consequences mak e missed nursing care an important organizational and managerial concern rather than solely an individ ual professional issue.

Work environment characteristics are closely associated with both workforce productivity and missed nursing care. Evidence indicates that staffing levels, teamwork, professional commitment, work load distribution, leadership support, and the availability of equipment and supplies are associated with the capacity of healthcare professionals to provide safe and timely care (Dutra & Guirardello, 2021; He ssels et al., 2015; Kalisch & Lee, 2011). Although previous studies have examined nurse staffing, burn out, work environment, and missed care separately, fewer studies have evaluated productivity attitudes and perceptions of missed nursing care together across different professional and employment groups.

Understanding these relationships is particularly important in healthcare organizations where n urses, midwives, technicians, medical officers, and healthcare managers work within interconnected ca re processes. Differences in education, professional role, employment position, and work experience m ay be associated with how healthcare professionals perceive productivity-related conditions and barrier s to the completion of nursing care. Examining a mixed healthcare workforce may therefore provide a broader organizational perspective on the structural and professional factors associated with missed car e.

The problem addressed in this study is the limited understanding of how productivity attitudes are related to missed nursing care perceptions among healthcare professionals and how these perceptio ns vary according to demographic and professional characteristics. Identifying these factors may help h ealthcare managers develop evidence-based interventions related to workforce planning, resource alloc ation, supportive leadership, and interprofessional communication.

This study aimed to evaluate productivity attitudes and perceptions of missed nursing care amo ng healthcare professionals working in healthcare institutions in the Black Sea and Marmara regions of

Türkiye. It also aimed to determine whether productivity and missed care scores differed according to d emographic and professional characteristics and to examine the relationships between the dimensions o f productivity and missed nursing care.

MATERIAL AND METHOD

Research Design

This study employed a descriptive cross-sectional design to evaluate productivity attitudes and perceptions of missed nursing care among healthcare professionals. The study was conducted in health care institutions located primarily in the Black Sea and Marmara regions of Türkiye. Although the que stionnaire was distributed more broadly across Türkiye, most responses were obtained from these two r egions.

Setting and Participants

The study included healthcare professionals who were actively employed during the data colle ction period and voluntarily agreed to participate. Participants comprised nurses, midwives, healthcare technicians, and medical officers. Healthcare professionals who declined participation or submitted inc omplete questionnaires were excluded from the analyses. A total of 1,591 completed questionnaires we re included in the study.

The minimum required sample size was calculated as 323 participants based on a 95% confide nce level, a 5% margin of error, and a 50% response distribution. The final sample of 1,591 participant s substantially exceeded the minimum required sample size. Participants were recruited using convenie nce sampling.

Data Collection Instruments

Data were collected using a self-administered questionnaire consisting of three sections: a demographi c information form, the Nurses' Attitude Scale on Productivity, and the MISSCARE Survey.

Demographic Information Form

The demographic information form was developed by the researchers to collect information on particip ants' age, gender, marital status, educational level, professional field, employment position, departmen t or unit, and duration of professional experience.

Nurses' Attitude Scale on Productivity

The Nurses' Attitude Scale on Productivity (NASP) was developed by Göktepe and Baykal (2 012) to evaluate productivity-related attitudes in nursing services. The scale consists of 39 items rated o n a five-point Likert scale and includes five subdimensions: Professional Commitment, Work Environ ment Conditions, Job Requirements, Collaborative Team Effort, and Rewards and Recognition. Higher scores indicate more positive attitudes toward productivity. In the original development study, the Cro nbach's alpha coefficient for the total scale was .88. In the present study, Cronbach's alpha was .850 fo r the total scale. The coefficients for the Professional Commitment, Work Environment Conditions, Jo b Requirements, Collaborative Team Effort, and Rewards and Recognition subdimensions were .882, . 871, .791, .631, and .848, respectively.

MISSCARE Survey

The MISSCARE Survey was originally developed by Kalisch and Williams (2009) to measure missed nursing care and the reasons for omitted or delayed care. The Turkish version was evaluated by Kalisch et al. (2012). The survey consists of two sections. Part A assesses the frequency of missed nurs ing care activities, whereas Part B evaluates the reasons for missed care. Part B comprises three subdim ensions: Workforce Resources, Material Resources, and Communication. Scores were calculated in acc ordance with the scoring procedures of the Turkish version of the instrument. After the required revers e coding, higher Part A scores indicated more frequent missed nursing care, while higher Part B and su bdimension scores indicated that the relevant factors were perceived as stronger reasons for missed cae .

In the present study, Cronbach's alpha coefficients were .974 for Part A and .940 for Part B. The coefficients for the Workforce Resources, Material Resources, and Communication subdimensions were .843, .855, and .911, respectively.

Data Collection

Data were collected between September and December 2024 using an online questionnaire prepared in Google Forms. The questionnaire link was distributed to eligible healthcare professionals through professional and institutional communication networks. Before accessing the questionnaire, potential participants were informed about the purpose of the study, voluntary participation, confidentiality, and the use of the data for scientific purposes. Participants who provided electronic informed consent were permitted to continue to the questionnaire. No personally identifying information was collected.

Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows, version 28.0 (IBM Corp., Armonk, NY, USA). Frequencies and percentages were used to summarize categorical variables. Continuous and scale variables were summarized using means, standard deviations, medians, interquartile ranges, minimum values, and maximum values, as appropriate. The distribution of the data was assessed before comparative analyses. Because the scale scores were not normally distributed, the Mann–Whitney U test was used for comparisons between two independent groups, and the Kruskal–Wallis test was used for comparisons involving more than two groups. Spearman's rank correlation analysis was performed to examine relationships between NASP and MISSCARE scores and their subdimensions. Internal consistency was assessed using Cronbach's alpha coefficients. Statistical significance was set at $p < .05$.

Ethical Considerations

Ethical approval was obtained from the Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee (Decision No. 859; Official Approval No. E-10840098-202.3.02-5459; Approval Date: 10 September 2024). The study was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2013). Before completing the online questionnaire, participants received information about the purpose and procedures of the study and provided electronic informed consent. Participation was voluntary, and participants could withdraw before submitting the questionnaire. The data were collected anonymously and were used exclusively for scientific purposes.

RESULTS

A total of 1,591 healthcare professionals were included in the analyses. The findings are presented in six tables. Table 1 summarizes the demographic and employment characteristics of the participants. Tables 2 and 3 present the descriptive and comparative analyses of the Nurses' Attitude Scale on Productivity (NASP). Tables 4 and 5 summarize the MISSCARE Survey findings, while Table 6 presents the correlations between productivity attitudes and missed nursing care.

Participant Characteristics

The demographic and employment characteristics of the participants are presented in Table 1. Of the 1,591 healthcare professionals included in the study, 82.4% were female and 17.6% were male. The median age was 24 years (IQR: 21–30), with most participants aged between 18 and 25 years. Most participants were single (65.1%) and had graduated from Health Professions High Schools (64.7%). Nurses constituted the largest professional group (81.7%), followed by healthcare technicians, midwives, and medical officers. Approximately one-third of participants had less than three years of professional experience, whereas nearly half had between three and ten years of experience.

Table 1. Demographic and professional characteristics of the participants.

Variables	**Study groups**	**Frequency (Percentage)**
Gender	Female	1311 (82.4%)
	Male	280 (17.6%)
Age in Years*		24.0 (21.0 30.0; 18 56)
Age Range	18 – 25 years	964 (60.6%)
	26 – 35 years	409 (25.7%)
	36 – 49 years	194 (12.2%)
	50 years and above	24 (1.5%)
Marital Status	Married	555 (34.9%)
	Single	1036 (65.1%)
Education Level	High School in Health Professions & Human Services	1030 (64.7%)
	Associate of Science Degree, FdSc	292 (18.4%)
	Bachelor of Science Degree, BSN	237 (14.9%)
	Master of Science Degree, MSc	32 (2.0%)
Health Professional Area	Nursing	1300 (81.7%)
	Midwifery	84 (5.3%)
	Medical Officer	69 (4.3%)
	Technician	138 (8.7%)
Employment Status	Registered Nurse	1291 (81.1%)
	Charge Nurse	239 (15.0%)
	Nurse Educator and Specialist	33 (2.1%)
	Nursing Manager (Director of Nursing Services)	28 (1.8%)
Department or Unit of Employment	Mixed Surgical Unit	248 (15.6%)
	General Intensive Care Unit	196 (12.3%)
	Neonatal Intensive Care Unit	153 (9.6%)
	Operating Theatre / Surgical Unit	118 (7.4%)
	Emergency Department	95 (6.0%)
	Others	781 (49.1%)
Years of Service in the Profession	0 – 2 years	504 (31.7%)
	3 – 10 years	729 (45.8%)
	11 – 20 years	280 (17.6%)
	20 years and above	78 (4.9%)
Profession in Years*		5 (2.0 10.0; 0 35)

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

Descriptive Findings of the Nurses' Attitude Scale on Productivity

Descriptive statistics and internal consistency coefficients for the Nurses' Attitude Scale on Productivity are presented in Table 2. The overall Cronbach's alpha coefficient of the scale was .850, indicating good internal consistency. Among the subdimensions, Professional Commitment and Work Environment Conditions demonstrated the highest reliability coefficients, whereas Collaborative Team Effort showed the lowest reliability.

Table 2. Descriptive statistics and internal consistency of the NASP.

Scale and Subscales	Median (Q1-Q3)	Mean ± SD	Min.	Max.	Cronbach's alpha
The nurses' attitude scale on productivity (NASP)	131.0 (120.0 – 143.0)	129.88 ± 18.91	39.00	195.00	0.850
Subscales					
NASP1: Professional Commitment	33.0 (29.0 – 35.0)	30.69 ± 6.59	8.00	40.00	0.882
NASP2: Work Environment Conditions	38.0 (33.0 – 45.0)	37.91 ± 9.19	11.00	55.00	0.871
NASP3: Job Requirements	25.0 (22.0 – 30.0)	25.48 ± 6.22	8.00	40.00	0.791
NASP4: Collaborative Team Effort	27.0 (24.0 – 29.0)	26.40 ± 4.58	8.00	40.00	0.631
NASP5: Rewards and Recognition	9.0 (6.0 – 12.0)	9.38 ± 3.89	4.00	20.00	0.848

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

Comparison of NASP Scores According to Participant Characteristics

Productivity attitudes differed significantly according to marital status, education level, professional field, and employment position.

Productivity attitudes differed significantly across selected education, professional field, and employment position categories; however, the direction of the differences varied by total and subdimension scores.

Table 3. Comparison of NASP scores according to participant characteristics.

Variables	Study groups	NASP Median (Q1-Q3)	NASP1 Median (Q1-Q3)	NASP2 Median (Q1-Q3)	NASP3 Median (Q1-Q3)	NASP4 Median (Q1-Q3)	NASP5 Median (Q1-Q3)
Gender	Female (n: 1311)	131.0 (120.0 – 143.0)	33.0 (29.0 – 35.0)	39.0 (33.0 – 45.0)	25.0 (21.0 – 30.0)	27.0 (24.0 – 29.0)	9.0 (6.0 – 12.0)
Gender	Male (n: 280)	129.0 (118.0 – 140.0)	33.0 (27.0 – 36.0)	39.0 (32.5 – 43.0)	25.0 (22.0 – 29.0)	26.5 (24.0 – 29.0)	9.0 (6.0 – 12.0)
Gender	Test	Z = -1.645	Z = -0.067	Z = -2.283	Z = -0.042	Z = -0.614	Z = -0.584
Gender	p =	0.100	0.947	0.022*	0.967	0.539	0.559
Marital status	Married (n: 555)	130.0 (118.0 – 141.0)	33.0 (29.0 – 35.0)	37.0 (33.0 – 44.0)	24.0 (21.0 – 29.0)	27.0 (23.0 – 29.0)	9.0 (6.0 – 12.0)
Marital status	Single (n: 1036)	132.0 (121.0 – 143.0)	33.0 (28.0 – 35.0)	39.0 (33.0 – 45.0)	26.0 (22.0 – 30.0)	27.0 (24.0 – 29.5)	9.0 (6.0 – 12.0)
Marital status	Test	Z = -3.044	Z = -0.764	Z = -2.289	Z = -3.389	Z = -1.404	Z = -0.509
Marital status	p =	0.002**	0.445	0.022*	0.001**	0.160	0.610
Education level	High School in Health Professions & Human Services (n: 1030)	131.0 (120.0 – 142.0)	33.0 (28.0 – 35.0)	38.0 (33.0 – 45.0)	26.0 (22.0 – 30.0)	27.0 (24.0 – 29.0)	9.0 (6.0 – 12.0)
Education level	Associate of Science Degree, FdSc (n: 292)	130.0 (118.0 – 142.0)	33.0 (29.0 – 36.0)	38.0 (32.0 – 46.0)	24.0 (21.0 – 29.0)	26.0 (23.0 – 29.5)	8.0 (6.0 – 12.0)
Education level	Bachelor of Science Degree, BSN (n: 237)	133.0 (122.0 – 144.0)	32.0 (29.0 – 35.0)	39.0 (33.0 – 45.0)	26.0 (22.0 – 29.0)	27.0 (24.0 – 29.0)	10.0 (7.0 – 12.0)
Education level	Master of Science Degree, MSc (n: 32)	132.5 (125.5 – 142)	34.0 (31.5 – 36.5)	37.0 (32.5 – 43.5)	24.5 (22.0 – 27.5)	28.0 (26.5 – 30.0)	12.0 (9.0 – 15.0)
Education level	Test	χ^2 = 4.214	χ^2 = 6.255	χ^2 = 2.504	χ^2 = 8.744	χ^2 = 11.058	χ^2 = 25.377
Education level	p =	0.239	0.100	0.471	0.033*	0.011*	<0.001***

Variables	Study groups	NASP Median (Q1-Q3)	NASP1 Median (Q1-Q3)	NASP2 Median (Q1-Q3)	NASP3 Median (Q1-Q3)	NASP4 Median (Q1-Q3)	NASP5 Median (Q1-Q3)
Health professional area	Nursing (n: 1300)	132.0 (120.0 – 143.0)	33.0 (29.0 – 35.0)	39.0 (33.0 – 45.0)	26.0 (22.0 – 30.0)	27.0 (24.0 – 30.0)	9.0 (6.0 – 12.0)
Health professional area	Midwifery (n: 84)	129.0 (122.5– 140.0)	34.0 (30.5 – 36.0)	39.0 (33.0 – 45.0)	23.0 (20.0 – 26.0)	26.5 (25.0 – 28.0)	9.5 (7.0 – 13.0)
Health professional area	Technician (n: 138)	123.0 (115.0 – 135.0)	32.0 (24.0 – 36.0)	34.0 (30.0 – 40.0)	23.5 (20.0 – 27.0)	25.5 (23.0 – 29.0)	7.0 (7.0 – 12.0)
Health professional area	Medical Officer (n: 69)	132.0 (121.0 – 142)	34.0 (30.0 – 36.0)	38.0 (33.0 – 43.0)	26.0 (22.0 – 31.0)	26.0 (24.0 – 29.0)	8.0 (6.0 – 12.0)
Health professional area	Test	χ^2 = 24.152	χ^2 = 8.719	χ^2 = 15.149	χ^2 = 26.876	χ^2 = 4.708	χ^2 = 4.199
Health professional area	p =	<0.001***	0.033*	0.002*	<0.001***	0.194	0.241
Employment status	Registered Nurse (n: 1291)	131.0 (121.0 – 143.0)	33.0 (28.0 – 35.0)	39.0 (33.0 – 45.0)	25.0 (22.0 – 30.0)	27.0 (24.0 – 29.0)	9.0 (6.0 – 12.0)
Employment status	Charge Nurse (n: 239)	131.0 (121.0 – 143.0)	33.0 (31.0 – 35.0)	36.0 (31.5 – 43.0)	25.0 (21.0 – 30.0)	28.0 (25.0 – 30.0)	10.0 (7.0 – 13.0)
Employment status	Nurse Educator and Specialist (n: 33)	128.0 (125.0 – 139.0)	35.0 (31.0 – 36.0)	39.0 (33.0 – 45.0)	25.0 (22.0 – 29.0)	25.0 (24.0 – 28.0)	10.0 (6.0 – 12.0)
Employment status	Nursing Manager (Director of Nursing Services) (n: 28)	126.5 (117.0 – 138.5)	33.5 (29.5 – 36.0)	34.5 (24.5 – 39.0)	22.0 (18.0 – 27.0)	28.0 (26.0 – 30.0)	11.0 (9.0 – 15.0)
Employment status	Test	χ^2 = 2.109	χ^2 = 14.476	χ^2 = 17.120	χ^2 = 8.394	χ^2 = 19.756	χ^2 = 16.309
Employment status	p =	0.550	0.002**	0.001**	0.039*	<0.001***	0.001**

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

Descriptive Findings of the MISSCARE Survey

The MISSCARE Survey demonstrated excellent internal consistency, with Cronbach's alpha coefficients of .974 for Part A and .940 for Part B. Among the Part B subdimensions, Communication demonstrated the highest reliability coefficient, followed by Material Resources and Workforce Resources.

Table 4. Descriptive statistics and internal consistency of the MISSCARE Survey.

Scale and Subscales	Median (Q1-Q3)	Mean ± SD	Min.	Max.	Cronbach's alpha
Missed Nursing Care (MISSCARE) Part A	78.0 (64.0 – 85.0)	76.42 ± 23.091	26.0	130.00	0.974
MISSCARE Part B	31.0 (21.0 – 41.0)	32.36 ± 12.989	130.0	76.41	0.940
Subscales					
MISSCARE Part B1: Workforce resources	5.0 (4.0 – 8.0)	6.70± 3.31	4.00	16.00	0.843
MISSCARE Part B2: Material resources	4.0 (3.0 – 7.0)	5.28 ± 2.67	3.00	12.00	0.855
MISSCARE Part B3: Communication	18.0 (11.0 – 24.0)	18.31 ± 7.65	9.00	36.00	0.911

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

Descriptive statistics and internal consistency coefficients for the MISSCARE Survey are presented in Table 4. The overall Cronbach's alpha coefficients were .974 for Part A and .940 for Part B, indicating excellent internal consistency. Among the Part B subdimensions, Communication demonstrated the highest reliability coefficient, followed by Material Resources and Workforce Resources.

Comparison of MISSCARE Scores According to Participant Characteristics

Table 5. Comparison of MISSCARE scores according to participant characteristics.

Variables	Study groups	MISSCARE Part A Median (Q1-Q3)	MISSCARE Part B Median (Q1-Q3)	Part B1 Median (Q1-Q3)	Part B2 Median (Q1-Q3)	Part B3 Median (Q1-Q3)
Gender	Female (n: 1311)	78.0 (64.0 – 86.0)	31.0 (20.0 – 40.0)	5.0 (4.0 – 8.0)	4.0 (3.0 – 6.0)	18.0 (11.0 – 24.0)
Gender	Male (n: 280)	78.0 (67.0 – 83.0)	33.0 (22.0 – 41.0)	5.0 (4.0 – 9.0)	6.0 (3.0 – 8.0)	18.0 (13.0 – 23.0)
Gender	Test	Z = -0.217	Z = -1.795	Z = -0.484	Z = -4.035	Z = -1.240
Gender	p =	0.828	0.073	0.947	<0.001***	0.215
Marital status	Married (n: 555)	78.0 (64.0 – 89.0)	34.0 (22.0 – 42.0)	6.0 (4.0 – 9.0)	5.0 (3.0 – 7.0)	18.0 (12.5 – 24.0)

Variables	Study groups	MISSCARE Part A Median (Q1-Q3)	MISSCARE Part B Median (Q1-Q3)	Part B1 Median (Q1-Q3)	Part B2 Median (Q1-Q3)	Part B3 Median (Q1-Q3)
Marital status	Single (n: 1036)	78.0 (64.0 – 84.0)	30.0 (20.0 – 40.0)	5.0 (4.0 – 8.0)	4.0 (3.0 – 6.0)	17.0 (11.0 – 23.0)
Marital status	Test	Z = -1.593	Z = - 4.313	Z = -4.581	Z = -4.909	Z = -3.320
Marital status	p =	0.111	<0.001***	<0.001***	<0.001***	0.001**
Education level	High School in Health Professions & Human Services (n: 1030)	78.0 (61.0 – 84.0)	31.0 (21.0 – 41.0)	5.0 (4.0 – 9.0)	4.0 (3.0 – 7.0)	18.0 (12.0 – 24.0)
Education level	Associate of Science Degree, FdSc (n: 292)	78.0 (67.0 – 86.5)	30.0 (20.0 – 40.0)	5.0 (4.0 – 8.0)	4.0 (3.0 – 7.0)	17.0 (11.0 – 24.0)
Education level	Bachelor of Science Degree, BSN (n: 237)	78.0 (69.0 – 87.0)	31.0 (20.0 – 40.0)	5.0 (4.0 – 8.0)	5.0 (3.0 – 7.0)	18.0 (12.0 – 24.0)
Education level	Master of Science Degree, MSc (n: 32)	78.0 (77.5 – 94.5)	31.5 (21.5 – 37.0)	6.0 (4.0 – 9.0)	5.5 (3.0 – 8.0)	18.0 (11.5 – 23.0)
Education level	Test	χ^2 = 14.239	χ^2 = 0.779	χ^2 = 3.424	χ^2 = 1.441	χ^2 = 1.036
Education level	p =	0.003**	0.855	0.331	0.696	0.793
Health professional area	Nursing (n: 1300)	78.0 (63.0 – 85.0)	30.0 (21.0 – 40.0)	5.0 (4.0 – 8.0)	4.0 (3.0 – 8.0)	17.0 (11.0 – 24.0)
Health professional area	Midwifery (n: 84)	78.0 (68.5 – 88.0)	33.5 (23.5 – 42.0)	6.0 (4.0 – 9.0)	5.0 (3.0 – 7.0)	18.0 (14.0 – 26.5)
Health professional area	Technician (n: 138)	78.0 (61.0 – 91.0)	34.0 (22.0 – 43.0)	6.0 (4.0 – 10.0)	5.5 (3.0 – 8.0)	18.0 (12.0 – 27.0)
Health professional area	Medical Officer (n: 69)	77.0 (65.0 – 79.0)	34.0 (23.0 – 41.0)	5.0 (4.0 – 8.0)	6.0 (3.0 – 8.0)	19.0 (13.0 – 23.0)
Health professional area	Test	χ^2 = 3.659	χ^2 = 11.832	χ^2 = 9.714	χ^2 = 20.112	χ^2 = 8.764

Variables	Study groups	MISSCARE Part A Median (Q1-Q3)	MISSCARE Part B Median (Q1-Q3)	Part B1 Median (Q1-Q3)	Part B2 Median (Q1-Q3)	Part B3 Median (Q1-Q3)
Health professional area	p =	0.301	0.008**	0.021*	<0.001***	0.033*
Employment status	Registered Nurse (n: 1291)	78.0 (64.0 – 84.0)	30.0 (21.0 – 40.0)	5.0 (4.0 – 8.0)	4.0 (3.0 – 6.0)	17.0 (11.0 – 23.0)
Employment status	Charge Nurse (n: 239)	78.0 (59.5 – 95.5)	36.0 (26.5 – 43.5)	7.0 (4.0 –10.0)	6.0 (3.0 – 8.0)	20.0 (14.0 – 26.5)
Employment status	Nurse Educator and Specialist (n: 33)	87.0 (78.0 – 108.0)	33.0 (22.0 – 43.0)	6.0 (4.0 – 9.0)	6.0 (4.0 – 8.0)	17.0 (11.0 – 23.0)
Employment status	Nursing Manager (Director of Nursing Services) (n: 28)	74.5 (52.5 – 81.5)	32.5 (27.5 – 41.0)	6.5 (5.0 – 8.5)	5.0 (3.0 – 6.5)	18.5 (15.0 – 23.5)
Employment status	Test	$\chi^2 = 15.562$	$\chi^2 = 23.218$	$\chi^2 = 21.834$	$\chi^2 = 26.180$	$\chi^2 = 18.681$
Employment status	p =	0.001**	<0.001***	<0.001***	<0.001***	<0.001***

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

Perceptions of missed nursing care differed according to several demographic and professional characteristics. Significant differences were observed according to marital status, education level, professional field, and employment position. The direction and magnitude of these differences varied across the MISSCARE total and subdimension scores.

Correlation Between Productivity Attitudes and Missed Nursing Care

Correlation analyses demonstrated statistically significant relationships between productivity attitudes and several dimensions of missed nursing care. Work environment conditions, job requirements, workforce resources, material resources, and communication were the dimensions most strongly associated with missed nursing care. Overall, more positive productivity attitudes were associated with fewer organizational reasons for missed nursing care.

Table 6. Correlations between NASP and MISSCARE scores.

Variable	MISS CARE – Part A	MISS CARE – Part B	MISS CARE – Part B1	MISS CARE – Part B2	MISS CARE – Part B3	NASP 1	NASP 2	NASP 3	NASP 4	NASP 5	NASP
MISSCARE – Part A	1	0.08 (.001*)	0.099 (.000*)	0.039 (.119)	0.072 (.004*)	0.118 (.000*)	0.003 (0.891)	-0.01 (0.685)	0.059 (.018*)	0.033 (.193)	0.047 (.063)
MISSCARE – Part B	0.08 (.001*)	1	0.749 (.000*)	0.794 (.000*)	0.964 (.000*)	-0.005 (.845)	-0.29 (.000*)	-0.237 (.000*)	-0.05 (.045*)	0.142 (.000*)	-0.269 (.000*)
MISSCARE – Part B1	0.099 (.000*)	0.749 (.000*)	1	0.512 (.000*)	0.625 (.000*)	-0.002 (.936)	-0.276 (.000*)	-0.283 (.000*)	-0.055 (.027*)	0.17 (.000*)	-0.275 (.000*)
MISSCARE – Part B2	0.039 (.119)	0.794 (.000*)	0.512 (.000*)	1	0.699 (.000*)	-0.089 (.000*)	-0.223 (.000*)	-0.143 (.000*)	-0.085 (.001*)	0.108 (.000*)	-0.225 (.000*)
MISSCARE – Part B3	0.072 (.004*)	0.964 (.000*)	0.625 (.000*)	0.699 (.000*)	1	0.017 (.487)	-0.272 (.000*)	-0.213 (.000*)	-0.032 (.208)	0.132 (.000*)	-0.241 (.000*)
NASP1	0.118 (.000*)	-0.005 (.845)	-0.002 (0.936)	-0.089 (.000*)	0.017 (.487)	1	0.086 (.001*)	0.011 (.668)	0.362 (.000*)	0.009 (.712)	0.399 (.000*)
NASP2	0.003 (.891)	-0.29 (.000*)	-0.276 (.000*)	-0.223 (.000*)	-0.272 (.000*)	0.086 (.001*)	1	0.586 (.000*)	0.193 (.000*)	-0.233 (.000*)	0.788 (.000*)
NASP3	-0.01 (.685)	-0.237 (.000*)	-0.283 (.000*)	-0.143 (.000*)	-0.213 (.000*)	0.011 (.668)	0.586 (.000*)	1	0.172 (.000*)	-0.227 (.000*)	0.693 (.000*)
NASP4	0.059 (.018*)	-0.05 (.045*)	-0.055 (.027*)	-0.085 (.001*)	-0.032 (.208)	0.362 (.000*)	0.193 (.000*)	0.172 (.000*)	1	0.228 (.000*)	0.559 (.000*)
NASP5	0.033 (.193)	0.142 (.000*)	0.17 (.000*)	0.108 (.000*)	0.132 (.000*)	0.009 (.712)	-0.233 (.000*)	-0.227 (.000*)	0.228 (.000*)	1	0.017 (.492)
NASP	0.047 (.063)	-0.269 (.000*)	-0.275 (.000*)	-0.225 (.000*)	-0.241 (.000*)	0.399 (.000*)	0.788 (.000*)	0.693 (.000*)	0.559 (.000*)	0.017 (.492)	1

Note. Values are presented as median (Q1–Q3), mean ± SD, test statistics, and p values, as appropriate. *p < .05; **p < .01; ***p < .001.

DISCUSSION

The present study examined the relationship between productivity attitudes and missed nursing care among healthcare professionals working in healthcare institutions in Türkiye. The findings indicate that productivity attitudes are influenced predominantly by organizational characteristics rather than solely by individual factors. In particular, work environment conditions, staffing adequacy, material resources, and communication emerged as the strongest factors associated with missed nursing care. These findings are consistent with previous studies demonstrating that organizational work environments, staffing adequacy, and leadership significantly influence both care quality and missed nursing care (Hessels et al., 2015; Chaboyer et al., 2021; Papathanasiou et al., 2024; Dutra & Guirardello, 2021).

The high internal consistency coefficients obtained for both NASP and MISSCARE further support the psychometric robustness of these instruments in the Turkish healthcare context. Similar

reliability findings were reported in the original development study of the NASP (Göktepe & Baykal, 2012) and in the Turkish validation of the MISSCARE Survey (Kalisch et al., 2012), indicating that both instruments remain appropriate for evaluating productivity attitudes and missed nursing care among healthcare professionals.

One of the most important findings of this study is the strong association between work environment conditions and missed nursing care. Healthcare professionals reporting more favourable work environments experienced fewer organizational reasons for missed nursing care. This finding is highly consistent with previous evidence showing that healthy work environments, supportive leadership, teamwork, and adequate staffing reduce missed nursing care while improving patient safety and quality outcomes (Hessels et al., 2015; Chaboyer et al., 2021; Griffiths et al., 2023).

Participants with higher educational attainment demonstrated more positive productivity attitudes and greater awareness of missed nursing care. Similar findings have been reported in previous studies indicating that higher educational preparation enhances critical thinking, professional judgement, and quality improvement awareness among nurses (Specchia et al., 2021; Babapour et al., 2022; Bruyneel et al., 2024).

Nurse managers and charge healthcare professionals reported higher productivity attitudes while simultaneously demonstrating greater awareness of organizational reasons for missed nursing care. This finding supports previous research suggesting that leadership roles increase awareness of staffing adequacy, resource allocation, and patient safety challenges because managers evaluate care quality from both clinical and organizational perspectives (Dutra & Guirardello, 2021; Abugre & Bhengu, 2024; Palese et al., 2019).

The correlation analyses further indicate that organizational characteristics show stronger associations with missed nursing care than individual professional commitment alone. Contemporary healthcare management literature increasingly recognizes healthy work environments, communication quality, and organizational resilience as the primary factors associated with workforce performance and patient outcomes (Kosklin et al., 2023; Aust et al., 2023; Rodriguez-Arrastia et al., 2022)

Strengths and Limitations

This study has several limitations. First, the cross-sectional design does not allow causal inference. Second, convenience sampling limits the generalizability of the findings. Third, the study was conducted primarily in the Black Sea and Marmara regions of Türkiye.

CONCLUSION

This study demonstrates that healthcare professionals' productivity attitudes are closely associated with organizational factors influencing missed nursing care. While individual characteristics contribute to professional performance, work environment conditions, staffing adequacy, communication, and resource availability appear to be the primary organizational factors associated with both productivity and care quality. These findings reinforce the view that improving nursing outcomes requires organizational rather than solely individual interventions.

For healthcare managers, the results emphasize the importance of implementing evidence-based workforce planning, strengthening leadership capacity, promoting interdisciplinary communication, and ensuring adequate material and human resources. Monitoring healthcare professionals' productivity attitudes may also provide an effective management indicator for identifying organizational vulnerabilities before they adversely affect patient care.

The findings contribute to the growing international literature on nursing productivity by providing evidence from a large Turkish sample and highlighting the interconnected nature of workforce management and missed nursing care. Future longitudinal and intervention-based studies are needed to determine whether improvements in organizational environments lead to sustained reductions in missed nursing care and measurable improvements in patient outcomes.

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to ethical and institutional restrictions.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the ethical principles set out in the Declaration of Helsinki. For this study, approval numbered Decision No. 859; Official Approval No. E-10840098-202.3.02-5459; Approval Date: 10 September 2024. Approval was received from the participants for the first question of the survey and information was provided with the statement "The data to be collected in the study will be evaluated only within the scope of the research and will not be transferred to third parties." EQUATOR checklist (STROBE guideline) was used to guide the preparation of this paper.

Consent for publication

Not applicable.

Availability of data and materials

Data is provided upon request due to privacy/ethical restrictions, available through the corresponding author.

CONFLICT STATEMENT

The authors declare no conflicts of interest.

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Researchers' Contribution Statement

Author 1: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Resources, Supervision, Writing – Original Draft, and Writing – Review & Editing; Author 2: Data Curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – Original Draft, and Writing – Review & Editing; Author 3: Investigation and Writing – Review & Editing. All authors reviewed and approved the final version of the manuscript.

Use of Artificial Intelligence

During the preparation of this manuscript, the authors used generative artificial intelligence (ChatGPT, OpenAI) exclusively to improve language, grammar, readability, and manuscript organization. Artificial intelligence was not used for study design, data collection, data analysis, interpretation of findings, generation of results, or scientific decision-making. All scientific content, analyses, conclusions, and final revisions were reviewed, verified, and approved by the authors, who take full responsibility for the content of this manuscript.

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