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A validity and reliability study of the citizenship fatigue scale in a Turkish sample

Hanife Tiryaki Sen[1*], Şehrinaz Polat[2], Mesut Karaman[3] and Dilek Özdemir[4]

Abstract

Aim The aim of the study was to assess the validity and reliability of the Citizenship Fatigue Scale in a Turkish context.

Method This methodological study involved 321 randomly selected nurses from a population of 650 at a public hospital. Data were collected using the Nurse Information Form, Citizenship Fatigue Scale, and Compulsory Citizenship Behavior Scale. The scales' validity and reliability were assessed through content and construct validity, test-retest reliability, internal consistency, criterion-related validity, and item-total score correlations.

Results The Kaiser-Meyer-Olkin (KMO) values and Bartlett's test of Sphericity for the Citizenship Fatigue Scale were found to be significant. The scale items were grouped under a single factor, with an eigenvalue greater than 1, accounting for 68.41% of the total variance. It was determined that the factor loadings of the scale items ranged from 0.624 to 0.879. A positive and significant correlation was found between citizenship fatigue and compulsory citizenship ($r = 0.654$; $p < 0.001$), confirming the criterion validity of the scale. The Cronbach's alpha coefficient for the scale was found to be 0.929, indicating high internal consistency.

Conclusion As a result of the validity and reliability analyses conducted in this study, it was determined that the Citizenship Fatigue Scale is a valid and reliable measurement tool for use with nurses in Türkiye. It is recommended that the scales be tested on samples from different occupational groups to further assess their applicability and generalizability.

Clinical trial number Not applicable.

Keywords Citizenship fatigue, Compulsory citizenship, Nurse, Validity, Reliability

Background

Nurses may experience various forms of fatigue, including physical, mental, and emotional fatigue, either consciously or unconsciously, in the context of busy and demanding work environments. The fatigue experienced by nurses can negatively impact their personal health, job performance, and patient outcomes. The concept of citizenship fatigue (CF) has gained increasing attention in the literature in recent years [1], which was first introduced by Bolino et al. (2012) [2]. Citizenship fatigue refers to a state in which employees experience feelings of weariness, exhaustion, stress, or boredom as a result of engaging in organizational citizenship behaviors in

*Correspondence:
Hanife Tiryaki Sen
hanifetiryaki@gmail.com
[1]Department of Nursing Management, Hamidiye Faculty of Nursing, University of Health Sciences, Istanbul, Türkiye
[2]Department of Nursing Management, Faculty of Nursing, Istanbul University, Fatih, İstanbul, Türkiye
[3]Department of Business Administration, Institute of Social Sciences, Cumhuriyet University, Sivas, Türkiye
[4]Education Department, Prof. Dr. Cemil Taşcıoğlu City Hospital, İstanbul, Türkiye

the workplace [1, 3, 4]. Citizenship fatigue (CF), characterized by both emotional and cognitive components, includes the perception of exceeding expectations or engaging in voluntary behaviors beyond the formal requirements of the role [5]. At the core of citizenship fatigue is the experience of an individual who sacrifices their own needs and desires for the benefit of others in situations that are perceived as necessary for their job [3].

The experience of citizenship fatigue is considered dysfunctional [6]. Employees who experience citizenship fatigue may be less likely to engage in organizational citizenship behaviors in the future [3]. When employees' citizenship fatigue decreases, their self-efficacy and ability to thrive at work tend to increase [7]. Citizenship fatigue is associated with several negative job outcomes, including increased turnover intention, anti-productive work behaviors, and other detrimental work-related consequences [4, 8]. One of the negative consequences of citizenship fatigue is work-family conflict [9]. In a study by Fu et al. (2022), it was reported that organizational citizenship behavior can trigger citizenship fatigue, which negatively impacts employees' health [10]. An increase in citizenship fatigue among employees is associated with a reduction in their psychological well-being [1]. Citizenship fatigue, along with workplace stressors, can negatively impact the mental health of employees [7]. When employees perceive stressors negatively, citizenship fatigue tends to increase, particularly similar to both challenging and inhibitory stressors within the organization [6].

The Conservation of Resources (COR) theory is often used to explain citizenship fatigue [3, 6]. The COR theory provides a comprehensive framework for understanding how individuals respond to stress by explaining the mechanisms through which they lose valuable resources due to job demands and workplace stressors [11]. The core premise of this theory is that individuals are motivated to acquire, protect, preserve, and expand the resources they need and value, such as time, energy, and social support [12, 13]. According to COR theory, the depletion of these resources can lead to physical or psychological discomfort, prompting individuals to seek situations that allow for resource surplus and avoid situations that result in resource deficits [13]. This theory suggests that feelings of exhaustion and fatigue arise when individuals encounter threats of resource loss, experience actual resource loss, or fail to achieve adequate returns from their resource investments [14].

Any situation in which employees perceive their resources as being depleted, at risk of depletion, or inadequate to meet demands may lead to the experience of citizenship fatigue [5]. A potential outcome of this is that employees exhaust their energy and resources, resulting in stress while engaging in organizational citizenship behaviors [3, 15]. Specifically, energy depletion and stress can prompt employees to engage in counterproductive work behaviors to recover resources, thereby contributing to the development of citizenship fatigue [8]. The depletion of energy resources resulting from citizenship fatigue impairs employees' ability to exert the effort necessary for high performance [6]. When employees experience resource depletion, they are more likely to avoid further resource investment to conserve what remains, due to the impact of citizenship fatigue. Consequently, employees experiencing citizenship fatigue tend to invest less effort in activities that could enhance their knowledge, such as organizational citizenship behaviors, ultimately leading to lower levels of self-education at work [5].

Since citizenship fatigue is a relatively new concept, further research is needed to deepen the understanding of this phenomenon. Although studies on citizenship fatigue have increased in recent years, there is a lack of research specifically focusing on nurses. Additionally, due to the absence of a similar scale in Türkiye, no studies on this subject have been found in the Turkish context. This study aims to address this gap, and the adaptation of the Citizenship Fatigue Scale for Turkish-speaking populations will contribute to the field of nursing by providing a valuable tool for future research.

Method

Aim

This study was conducted to assess the validity and reliability of the Citizenship Fatigue Scale in the Turkish context.

Design

A methodological design was employed in the study.

Research question

Q1 Is the Citizenship Fatigue Scale a valid and reliable tool for use in a nurse sample?

Population and sampling

The study was conducted with nurses working in a public hospital. The hospital was chosen because it provides comprehensive patient services, accepts patients from all regions of Türkiye, and has a large bed capacity and diverse patient population. The study population consisted of 615 nurses. The data collection tool was distributed to all 615 nurses without using a sampling method. Data from 12 nurses who did not complete the questionnaire were excluded from the study's data analysis. This study evaluated the data obtained from the 320 nurses who completed the questionnaire in its entirety. The study sample consisted of 320 nurses. These nurses constituted 52% of all nurses.

Data collection tool

The data collection tool used in the study included the Nurse Information Form, the Citizenship Fatigue Scale, and the Compulsory Citizenship Behavior Scale (CCB). The personal information form consists of 13 questions designed to gather demographic and professional information from the participants. The questions include demographic and professional details such as age, gender, marital status, educational level, type of shift, and the participants' level of education.

Citizenship fatigue scale

The scale was developed by Bolino et al. [16], who reported that it exhibits a clear unidimensional structure. All items included in the scale are positively worded, and there are no negatively phrased items. The scale is scored using a five-point Likert type format, ranging from "1-Strongly disagree" to "5-Strongly agree". Since the scale items are scored on a 1 to 5 scale, the lowest possible mean score to be obtained is 1, and the highest possible score is 5. High mean scores on the scale indicate that nurses experience high levels of citizenship fatigue [16].

Compulsory citizenship behavior scale (CCB)

It is a five-item, 5-point Likert-type tool developed by Vigoda-Gadot [17]. Each item is scored on a scale from "1-Strongly disagree" to "5-Strongly agree", similar to the other scale. In this scale, the items are evaluated based on the total mean score, with the minimum score of 1 and the maximum score of 5. As the mean score increases, so do nurses' perceptions of compulsory citizenship behavior. While the internal consistency coefficient of the original scale was found to be 0.83 [17], the internal consistency coefficient of the scale adapted by Harmancı Seren and Ünaldı Baydın [18] was found to be 0.88.

Data collection

The study took place from March 14, 2023, to May 15, 2024. The researchers directly notified the nurses of the purpose of the study and the questionnaire form used in the study. The questionnaire was given to nurses who voluntarily agreed to participate in the study. Approximately 10 days later, the researchers collected the forms back from the nurses.

Data analysis

Data were collected using IBM SPSS Statistics version 26 (IBM, Armonk, NY) and analyzed using AMOS 24 (Scientific Software International, Skokie, IL). Descriptive statistics for sociodemographic variables, along with psychometric tests, including exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and convergent validity statistics, were used to assess construct validity. Prior to analysis, Kaiser-Meyer-Olkin (KMO) coefficients and Bartlett's tests of sphericity were performed to evaluate sample adequacy and correlation between variables, ensuring their suitability for factor analysis. The Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity were applied to confirm that the dataset met the basic conditions for construct validity prior to factor analysis. Exploratory factor analysis (EFA) with varimax rotation was then performed. Varimax rotation enables factor loadings to become clear and form interpretable groups. It maximizes factor variance, making high loadings more prominent and enabling precise distribution of scale items into sub-dimensions. The maximum likelihood estimation method was used in the Confirmatory Factor Analysis (CFA). Confirmatory factor analysis (CFA) is used to confirm the predetermined factor structure of a scale and to test its construct validity. CFA evaluates how well the factors defined by researchers align with the observed data, thereby demonstrating the statistical consistency of the scale's subscales. Fit indices (RMSEA, CFI, and NFI) determine the extent to which the model fits the data. The reliability of the scale is supported by composite reliability coefficients. The following fit indices were used to assess model fit in the CFA: Chi-square (χ^2), chi-square/degrees of freedom (χ^2/df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normalized fit index (NFI), incremental fit index (IFI), Tucker-Lewis index (TLI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and root mean square residual (RMR). Model fit was assessed using the following criteria: values of AGFI, GFI, NFI, IFI, TLI, and CFI greater than or equal to 0.95 and values of RMR and RMSEA between 0 and 0.08 were considered indicative of a good fit. Additionally, χ^2/df values between 0 and 2 were considered acceptable [19–21]. Then, convergent validity was assessed using the following indices: CR (composite reliability) and AVE (average variance extracted). Composite reliability (CR) and average variance extracted (AVE) are statistical measures used to assess the reliability and validity of scales. Like Cronbach's Alpha, CR measures internal consistency, but it provides more precise results for multidimensional scales by taking factor loadings into account. AVE measures the amount of variance that a factor explains from the items connected to it. Together, these two measures are used to test convergent validity. Additionally, for discriminant validity, the square root of AVE must be greater than the correlation between factors. Cronbach's alpha coefficient was used to assess the internal consistency for the reliability analysis. Cronbach's alpha coefficient measures the consistency and compatibility of the items in a scale or test, i.e., its internal consistency and reliability. To evaluate the scale's time invariance, a dependent samples t-test and the intraclass correlation coefficient (ICC) were employed using

the test-retest method. Pearson correlation analysis was used to assess the scale's criterion validity. Data were collected from 50 nurses who voluntarily participated in the study to calculate the values for the test-retest method and intra-class correlation. The retest was conducted two weeks after the initial measurement. The test-retest method is used in the scale adaptation process to evaluate whether the scale produces consistent and stable measurements over time. Intra-class correlation and test-retest analysis were conducted to assess the stability and consistency of the measurements. In determining the factors affecting citizenship fatigue and compulsory citizenship behavior, it was found that the Skewness and Kurtosis values of the scales ranged between −1.5 and +1.5, indicating acceptable normality of the data [22]. Independent samples t-test, one-way analysis of variance (ANOVA), and post hoc Tukey's test were performed to examine the differences between the groups.

Table 1 Socio-demographic characteristics

Socio-demographic information		*N*	%
Gender	Female	296	85.1
	Male	52	14.9
Marital Status	Single	236	67.8
	Married	112	32.2
Age	20–30	259	74.4
	31–40	49	14.1
	41 and over	40	11.5
Educational Status	Vocational High School of Health	30	8.6
	Associate Degree	18	5.2
	Bachelor's Degree	264	75.9
	Postgraduate	36	10.3
Unit	Emergency Service	48	13.8
	Internal Units	134	38.5
	Surgical Units	166	47.7
Total Professional Years	1–3 years	163	46.8
	4–6 years	80	23
	7–10 years	40	11.5
	11 years and above	65	18.7
Duration of Experience in the Institution	1–3 years	195	56
	4–6 years	74	21.3
	7–10 years	29	8.3
	11 years and above	50	14.4
Duration of Experience in the Unit	1–3 years	263	75.6
	4–6 years	47	13.5
	7–10 years	15	4.3
	11 years and above	23	6.6
How long have you been working in your current position?	1–3 years	198	56.9
	4–6 years	87	25
	7–10 years	31	8.9
	11 years and above	32	9.2
Type of Work Schedule	Day shifts	104	29.9
	Day and night shifts	244	70.1
Position	Nurse	296	85
	Charge Nurse	19	5.5
	Other	33	9.5
Passion for the Profession	Yes	306	87.9
	No	42	12.1
Are you satisfied with your profession?	Yes	278	79.9
	No	70	20.1

Ethics approval and consent to participate

The ethical principles set out in the latest revision of the Declaration of Helsinki were strictly adhered to in conducting this study, and the highest standards of ethical conduct were maintained throughout the research process. Permission was obtained from the author who developed the Citizenship Fatigue Scale to conduct validity and reliability analyses. The research received approval from the Social and Humanities Research Ethics Committee at Istanbul University on March 13, 2024 (Approval number: 2476345). Additionally, written permission was obtained from the relevant hospital to conduct the study. All participants were informed of the study's objectives, procedures, and potential risks, and they were informed of their right to withdraw at any time. The questionnaire did not request names, phone numbers, or personal details, and all identifying features were removed. Written consent was obtained from the participants. The study sample consisted of nurses who voluntarily agreed to participate. Informed consent was obtained from all participants.

Results

Participants' characteristics

The socio-demographic characteristics of the nurses are presented in Table 1.

Among nurses, 85.1% are female, 67.8% are single, and 74.4% are between 20 and 30 years old. Additionally, 75.9% have a bachelor's degree, 47.7% work in surgical units, and 46.8% have 1–3 years of professional experience. Of those, 56% have 1–3 years of experience at the institution, 75.6% have 1–3 years of experience in their current unit, and 56.9% have 1–3 years of experience in their current position. Furthermore, 70.1% follow a day-and-night shift schedule, 87.9% are passionate about their profession, and 79.9% are satisfied with their profession (Table 1).

Content validity

Opinions from 12 experts were received to evaluate scope and content equivalence. The Turkish version was evaluated by 12 experts specializing in nursing management who have experience with scale validity and reliability, as well as the research team. Content validity was assessed using the Lawshe technique. The content validity index for the items was 0.96 (see Table 2).

Table 2 Item analysis, content validity, rotated structures matrix and skewness and kurtosis values of scale items

	CVI	$\bar{x}\pm ss$	Corrected item-total correlation	Cronbach's alpha if item deleted	Factor load	Skewness	Kurtosis
CF 1	0.92	3.27 ± 1.17	0.763	0.909	0.809	−0.303	−0.804
CF 2	0.92	3.20 ± 1.21	0.814	0.904	0.860	−0.163	-1.022
CF 3	1.00	3.29 ± 1.17	0.816	0.904	0.879	−0.250	−0.946
CF 4	1.00	3.33 ± 1.14	0.828	0.903	0.860	−0.306	−0.795
CF 5	1.00	3.29 ± 1.13	0.814	0.904	0.853	−0.234	−0.894
CF 6	0.92	3.17 ± 1.11	0.640	0.921	0.648	−0.190	−0.791
CF 7	1.00	2.66 ± 1.15	0.619	0.923	0.624	0.300	−0.683

CF: Citizenship Fatigue; CVI: Content Validity Index; Eigenvalue Coefficient: 4.789; Explained Variance: 68.410

Item analysis

The study included an item analysis to evaluate the characteristics and discriminative power of the scale items. The item-total correlation coefficients for the Citizenship Fatigue Scale were greater than 0.30 (see Table 2).

Construct validity

We examined the construct validity of the scale using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), as well as convergent validity.

Exploratory factor analysis

The first step in assessing construct validity was to conduct an exploratory factor analysis (EFA) with varimax rotation. The KMO test and Bartlett's test of sphericity were conducted as initial steps in EFA. The KMO value was 0.874, and Bartlett's test revealed a chi-square value of 877.581 (df = 21, $p < 0.001$). Scale items were grouped under a single factor with an eigenvalue greater than one, accounting for 68.41% of the total variance. Item inference was not conducted since the factor loadings of the scale items exceeded 0.45. The factor loadings were found to range from 0.624 to 0.879 (see Table 2).

Confirmatory factor analysis (CFA)

As a result of the exploratory factor analysis (EFA), a confirmatory factor analysis (CFA) was conducted to assess the single-factor structure of the scale. In the seven-item CFA model, the error covariance between e3 and e6 was specified according to the modification recommendations (Fig. 1). The CFA model's goodness-of-fit values are presented in Table 3.

The desired fit indices for the single-factor scale were as follows: χ^2/df (< 3), AGFI (> 0.90), RMSEA (< 0.080), RMR (< 0.050), GFI, NFI, IFI, TLI, and CFI (> 0.95). The results indicated a good model fit because the values met the acceptable thresholds (see Table 3).

The CFA resulted in standardized factor loadings for the scale ranging from 0.687 to 0.915 (see Table 4).

Convergent validity

In order to assess the convergent validity of the Citizenship Fatigue Scale, the CR and AVE coefficients were analyzed. The EFA revealed CR = 0.90 and AVE = 0.57. The CFA revealed CR = 0.98 and AVE = 0.69. Convergent validity of the scale was confirmed in both samples.

Reliability

The Cronbach's alpha value for the Citizenship Fatigue Scale was 0.922 for the exploratory factor analysis (EFA) sample ($N = 168$) and 0.932 for the confirmatory factor analysis (CFA) sample ($N = 180$). For the full sample of 348 participants, the Cronbach's alpha value was 0.929.

Criterion validity and test-retest analysis

The Compulsory Citizenship Behavior Scale was selected as the criterion measure to evaluate the validity of the Citizenship Fatigue Scale. Pearson correlation analysis was used to examine the relationship between citizenship fatigue and compulsory citizenship (see Supplemental Table 1).

A positive and significant correlation was found between citizenship fatigue and compulsory citizenship ($r = 0.654$, $p < 0.001$), which establishes criterion validity (see Supplemental Table 1).

Test-retest reliability was assessed using the dependent samples t-test and the intraclass correlation coefficient (ICC). The dependent samples t-test revealed no significant difference between the two measurements [before (3.5 ± 0.64) and after (3.48 ± 0.57)] for the Citizenship Fatigue Scale (t = 0.487, $p = 0.628$). The ICC for the Citizenship Fatigue Scale was 0.949, with a 95% confidence interval ranging from 0.911 to 0.971 (F = 19.744, $p < 0.001$).

Factors affecting citizenship fatigue and compulsory citizenship behavior

Significant differences were found between citizenship fatigue and total professional years ($p = 0.004$), lack of passion for the profession ($p < 0.001$), and job satisfaction ($p < 0.001$). Citizenship fatigue was found to be significantly higher among individuals without a passion for their profession and among the dissatisfied, particularly those with 4–6 years of total professional experience (see Supplemental Table 2).

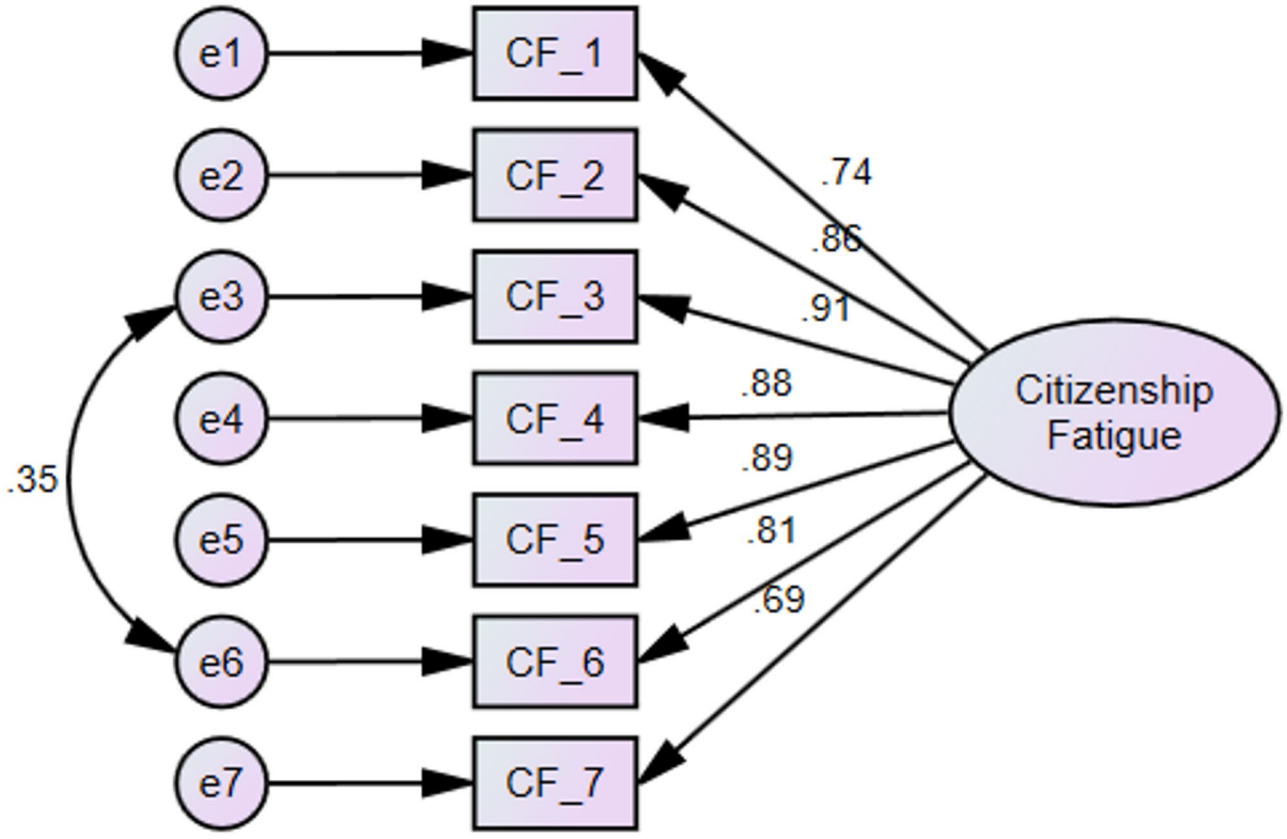

Fig. 1 CFA Image of Citizenship Fatigue (N: 180) CF: Citizenship Fatigue

Table 3 Citizenship fatigue CFA model fit indices (N: 180)

Criterion	χ2 /sd	RMR	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
Good Fit	≤ 2	≤ 0.05	≥ 0.95	≥ 0.95	≥ 0.95	≥ 0.95	≥ 0.95	≥ 0.95	≤ 0.05
Acceptable	≤ 5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08
Model fit indices	2.045	0.037	0.955	0.904	0.975	0.987	0.979	0.987	0.076

Table 4 Standardized factor load coefficients

Scale items	RW	SRW	S.E.	Test statistics	*P*	Skewness	Kurtosis
CF 1	0.880	0.739	0.079	11.177	***	−0.355	−0.716
CF 2	1.004	0.861	0.072	13.873	***	−0.352	−0.746
CF 3	1.108	0.915	0.083	13.382	***	−0.375	−0.859
CF 4	1.029	0.879	0.072	14.309	***	−0.433	−0.721
CF 5	1.060	0.893	0.072	14.656	***	−0.450	−0.703
CF 6	1.000	0.815				−0.206	−0.963
CF 7	0.843	0.687	0.083	10.171	***	0.506	−0.678

***$p < 0.001$ CF: Citizenship Fatigue; RW: Regression Weights; SRW: Standardized Regression Weights; S.E.: Standard Error

A significant difference was also found between compulsory citizenship behavior and the unit of employment ($p = 0.004$), lack of passion for the profession ($p < 0.001$), and job satisfaction ($p < 0.001$). Compulsory citizenship behavior was significantly higher among individuals working in internal units, those without passion for their profession, and those dissatisfied with their profession (see Supplemental Table 2).

Discussion

It has been demonstrated that the Citizenship Fatigue (CF) Scale meets the criteria for language, content, and construct validity, as well as reliability, and can be easily administered by nurses. As a result of this study, the original form of the scale was preserved, and no changes were made to the items that constitute the scale.

Content validity examines whether the tool adequately covers all the relevant content associated with the variable [23]. A subset of content validity is surface validity, which involves asking experts to assess whether a tool measures the intended concept [23]. Content validity was assessed using the Lawshe technique. The opinion of 12 experts was received to evaluate the scope and content equivalence. The prepared Turkish version was evaluated by 12 experts in the field of nursing management, external to the research team, who have expertise in scale validity and reliability. As noted by Esin [24], the Content Validity Index (CVI) is a widely used method for evaluating content and scope validity, allowing experts to assess the content of a scale numerically [24]. Therefore, using the CVI is a common practice in validity assessments. The experts were asked to evaluate the scale items on a 4-point scale (1: Not suitable, 2: The item needs to be adjusted, 3: Suitable yet small adjustments are required, 4: Very suitable) in terms of language, cultural relevance, and content validity for the items included in the draft version of the test. According to Esin [24] and Şencan [25], a commonly used criterion to ensure the content validity of a scale is that the value should be 0.80 or higher [24, 25]. It indicates that experts are expected to reach a consensus of 0.80 or higher, stating that the content of each scale item adequately covers the construct being measured. In this study, it was determined that the content validity of the scale was ensured, as the CVI score for the scale items was 0.96.

Before conducting factor analysis, the correlations between the items should be carefully considered. In the study, item analysis was conducted to evaluate the characteristics and discriminative power of the scale items. As stated by Şencan [25] and Büyüköztürk [26], items with an item-total correlation of 0.30 or higher are considered effective in distinguishing individuals, while correlations between 0.20 and 0.30 suggest that the item may either be retained for testing if deemed essential or require revision. However, correlations lower than 0.20 indicate that the item should not be included in the test [25, 26]. If no correlation value greater than 0.30 is found in the correlation matrix between items, or if the correlations are too low, the data set is likely unsuitable for analysis [27]. Since the item-total correlation coefficients of the Citizenship Fatigue Scale are greater than 0.30, it was concluded that the scale is reliable and appropriate for factor analysis.

Construct validity refers to the extent to which inferences can be made about test scores in relation to the concept being studied [23]. It also assesses whether the measurement tool accurately represents the underlying theoretical structure [26]. Factor analysis is one of the methods used to evaluate construct validity. Factor analysis is a technique used to determine the subscales in which the items of a scale are grouped, which is divided into two types: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). For the construct validity of the scale, it was assessed using EFA, CFA, and convergent validity.

To ensure the validity of data analysis, it is necessary that the number of samples exceeds the number of variables, that the sample size is at least 50, and that the number of observations per item is sufficiently high [27]. The sample size in this research met the necessary conditions for data analysis. The next test for assessing suitability for factor analysis is the Bartlett's Test of Sphericity. The Bartlett's test examines the overall correlation matrix and assesses the statistical significance of the correlations within the matrix. The desired outcome is that the test indicates statistical significance. As the final step, the KMO value was examined. The KMO test is used to measure the correlations between variables and assess the suitability of the data for factor analysis. The KMO test value for factorability is expected to range from 0 to 1, with a value greater than 0.60 indicating adequate suitability for factor analysis [26]. The Bartlett's test examines whether there is a significant relationship between variables based on their partial correlations [28]. The calculated χ^2 value and the statistical significance ($p < 0.05$) indicate that the data matrix is appropriate and that the scores exhibit normality [26, 28]. A KMO value of 0.80 and above indicates excellent suitability of the scale for factor analysis [26, 28]. In this study, both the KMO test and the Bartlett's sphericity test were conducted. Since the KMO value was found to be 0.874, which is higher than 0.80, the suitability of the scale for factor analysis was considered excellent. Additionally, the Bartlett's sphericity test result was approximated as Chi-Square = 877.581 ($df = 21$, $p < 0.001$), indicating that the Bartlett test was significant. The scale items were grouped under a single factor, with an eigenvalue greater than 1, accounting for 68.41% of the total variance. The fact that the explained variance exceeds 50% of the total variance is an important criterion for factor analysis since if the factor structure explains less than half of the total variance, it would be incorrect to discuss its representational ability [27]. It was determined that the data set of this study is suitable for factor analysis, that the scale has a one-factor structure, and that the explained variance is an acceptable value [25, 26]. It was determined that the factor loadings of the scale items ranged from 0.624 to 0.879. Considering that a factor loading value of 0.45 or above is considered a good criterion for selection [26], the factor loadings of the scale items are deemed to be acceptable. Therefore, no items were removed from the scale.

As a result of the EFA, a CFA was conducted to assess the single-factor structure of the scale. According to

Rigdon [29], the RMSEA value within the 95% confidence interval should range from 0.03 to 0.08, with values above 0.08 indicating a poor model fit [29]. In the study, it was determined that this value is acceptable, with an RMSEA value of < 0.080. The GFI statistic ranges from 0 to 1 and is inversely proportional to the degrees of freedom [27]. Bollen [30] reported that the GFI value indicates a good fit when it is greater than 0.90, while Shevlin and Miles [31] suggested that a value greater than 0.95 is necessary for it to be considered a good fit [30, 31]. In this study, the GFI was considered to be at a good fit level, as the GFI value was greater than 0.95. The NFI value ranges from 0 to 1, with a threshold value of 0.90 considered to be adequately appropriate [32]. It was determined that the NFI was at a good fit level, as the NFI value was greater than 0.95. A TLI value greater than 0.90 indicates a good fit [32]. It was determined that the TLI was at a good fit level, as the TLI value was greater than 0.95. A CFI greater than 0.90 indicates a good fit [32]. It was determined that the CFI demonstrated good fit, as the CFI value was greater than 0.95. When χ^2/df (NC), one of the desired fit indices for the single-factor scale, is less than 1.0, it suggests that the model is inadequate, while values exceeding 5.0 indicate that the model requires improvement [33]. In this study, the model was considered acceptable since χ^2/df was less than 3. An AGFI greater than 0.90 indicates a good fit [32]. Since the AGFI value was greater than 0.95, it was determined that the AGFI indicated a good fit in this study.

Convergent validity was evaluated. Convergent validity refers to the extent to which indicators related to variables are strongly correlated with each other and with the factor they collectively represent [27]. For convergent validity, all CR values associated with the scale should be greater than the AVE values, and the AVE value should exceed 0.5 [27]. The CR and AVE coefficients were analyzed to assess the convergent validity of the Citizenship Fatigue Scale. As a result of the analysis in the EFA, the CR was found to be 0.90 and the AVE was 0.57. In the CFA, the CR was 0.98 and the AVE was 0.69. The convergent validity of the scale was confirmed in both samples. The fit indices obtained from the CFA were found to be satisfactory.

The second measure of quality in a quantitative study is reliability, which refers to the consistency and accuracy of the measurement instrument. In other words, reliability refers to the extent to which a research tool produces consistent results when applied repeatedly under the same conditions. Reliability is related to the consistency of a measurement [23]. In this study, the Cronbach's alpha reliability coefficient was calculated to assess whether each item of the scale consistently measures the same underlying construct. Cronbach's alpha is the most commonly used measure to determine the internal consistency of a scale [23]. This test is commonly used to assess the internal consistency of Likert-type scales [33, 34]. A reliability coefficient of 0.70 or higher is generally considered sufficient to ensure the reliability of test scores in psychological assessments [26]. The Cronbach's alpha value of the scale was calculated as 0.922 based on the EFA sample ($N = 168$), and 0.932 based on the CFA sample ($N = 180$). For the entire sample ($N = 348$), the Cronbach's alpha value of the scale was found to be 0.929. For this reason, it can be concluded that the Citizenship Fatigue Scale is reliable.

Pearson correlation analysis revealed a positive and significant correlation between citizenship fatigue and compulsory citizenship ($r = 0.654$, $p < 0.001$), demonstrating criterion validity. The positive relationship between citizenship fatigue and compulsory citizenship behaviors observed in this study aligns with previous research and COR theory. According to COR theory, citizenship fatigue in nurses is characterized by burnout and a loss of energy resulting from the excessive use and failure to replenish personal resources. When nurses perform extra role behaviors at work, such as doing extra work or helping others, they expend personal resources, including energy, time, and psychological resilience. According to COR theory, individuals want to protect, maintain, and increase their resources. However, stress and burnout occur when these resources are threatened, lost, or not replenished [35–37]. Citizenship fatigue occurs when nurses are constantly confronted with extra role expectations, which depletes their resources. In particular, compulsory citizenship behaviors (e.g., being forced to work overtime) increase work-life conflict, accelerating resource loss and triggering fatigue, which leads to citizenship fatigue over time [35, 38, 39]. Developing supportive organizational strategies to protect nurses' resources plays an important role in reducing citizenship fatigue [35, 36].

The ability of the scale, evaluated with reliability analysis, to provide consistent results across different applications and to demonstrate time invariance was examined [40]. Test-retest reliability was assessed using the dependent samples t-test and the intraclass correlation coefficient (ICC). While it is generally stated that the reliability coefficient should be at least 0.80, a coefficient of 0.70 is also considered sufficient [25]. No significant difference was found between the two measurements [before (3.5 ± 0.64) and after (3.48 ± 0.57)] in the dependent samples t-test for the Citizenship Fatigue Scale ($t = 0.487$, $p = 0.628$). The intraclass correlation coefficient (ICC) for the Citizenship Fatigue Scale was found to be 0.949, with a 95% confidence interval ranging from 0.911 to 0.971 ($F = 19.744$, $p < 0.001$).

Limitations

This study has several limitations. The first limitation is that the data were collected through self-report surveys, which may introduce response bias. It is acknowledged that this study has sampling limitations. The findings are limited in their generalizability because the research data were obtained only from a single public hospital in Türkiye. Future studies with larger samples from different regions, hospitals, cultural contexts, and professional groups will increase the results' external validity. Therefore, similar studies with more diverse and comprehensive samples are recommended for future research. This contributes to the generalization of the study.

Secondly, in the cross-sectional design of the study, generalization cannot be made due to the fact that the data were collected from a single hospital. This study's reliance on self-reported data may lead to response biases, such as respondents' tendency to give socially desirable answers or their inability to fully recall past experiences. This may limit the accuracy and reliability of the findings. Thus, qualitative methods, such as interviews, in addition to self-report data, will contribute to a deeper and more comprehensive understanding of participants' experiences in future research.

Third and finally, the collection of data only from the nurse sample limited its generalizability to different samples. Due to the cross-sectional design of this study, it is difficult to establish causal relationships based on the findings. In other words, the course of relationships between variables over time and possible cause-and-effect links could not be revealed. Therefore, future longitudinal studies are needed to better understand the dynamics of citizenship fatigue and reveal changes over time and causal relationships in a more reliable way.

Conclusion

This study provides various information for health organizations. This study will benefit nurse managers to reconsider the way they ask nurses to go beyond their duties, their feelings of citizenship fatigue. In an era when resources are scarce, it is important to ensure that employees become good organizational citizens in a sustainable way. This requires balancing the task performance of individuals and organizations. In addition, discretionary contributions and personal obligations need to be managed effectively. For this, it is important to better understand citizenship fatigue. This understanding will help for more effective management. According to the results of the validity and reliability analysis, the Citizenship Fatigue Scale, a 5-point Likert-type scale, was found to be both valid and reliable for nurses in Turkish society. Future studies are recommended to focus on identifying the factors that influence citizenship fatigue and exploring the consequences it may lead to. Additionally, it is suggested that future research explore how employees cope with citizenship fatigue.

Implications for nursing and health policy

This study highlights the importance of encouraging organisational citizenship behaviours. In addition, it provides a valuable contribution to the nursing literature as it provides evidence on citizenship fatigue from the perspective of resource depletion in the context of COR theory. When employees are asked to help others, they are put under extra workload and have difficulty balancing their resources. This situation also leads to citizenship fatigue. Health and nursing managers should develop policies and practices that support nurses to exhibit these behaviours. To reduce citizenship fatigue, nurse managers should create a supportive organizational climate, fairly distribute the nurses' workload, and regulate working hours. Improving the physical and social work environments and encouraging social activities and practices that increase empathy can increase job satisfaction and motivation. To increase nurses' job satisfaction and organizational trust, strategies should be implemented to reduce workload and stress levels. Citizenship fatigue can be alleviated by providing resource renewal through practices such as social support, flexible working hours, and reward systems. In addition, time management, relaxation techniques, counseling, and professional development opportunities that facilitate coping with stress and fatigue should be offered. A sensitive and supportive attitude from managers reduces nurses' tendency to leave their jobs due to burnout and citizenship fatigue. This approach can increase patient safety, improve the quality of care and reduce negative patient outcomes. The importance of organisational citizenship behaviours should be included in nursing education programmes and performance evaluation systems should be used to measure and encourage these behaviours.

Policy makers should develop legal regulations to improve the working conditions of nurses and provide sufficient staff and resources to health institutions. Nurses' access to continuing education and professional development opportunities should be increased and work-life balance should be promoted. Implementation of these recommendations may reduce nurses' citizenship fatigue and increase their job satisfaction and organisational commitment. In order for nurses not to experience citizenship fatigue, nurse managers can change their job designs and make restructuring at the workplace. They can also distribute responsibilities more evenly by reducing employees' workloads. For this purpose, they can make use of this measurement tool. It may also be useful for nursing management to investigate in future studies how performing certain citizenship actions can lead to more specific feelings of citizenship fatigue

(for example, getting tired from helping others or working on weekends). In particular, the performance difficulties that employees face in the presence of citizenship pressures can spread to the organizational level. Therefore, nurse managers should design systems to measure whether it contributes to employee performance or how it reduces this performance when they have a call to duty. As a result, the quality of patient care may improve and the overall effectiveness of health services may increase.

To reduce citizenship fatigue, nurse managers should create a supportive organizational climate, distribute the nurses' workload fairly, and regulate working hours. Improving the physical and social work environments and encouraging social activities and practices that increase empathy can increase job satisfaction and motivation. Additionally, they should offer time management, relaxation techniques, counseling, and professional development opportunities to help nurses cope with stress and fatigue. A sensitive and supportive attitude toward employees by managers reduces burnout and citizenship fatigue among nurses and decreases the tendency to leave the job.

Supplementary Information

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Supplementary Material 1

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Author contributions
HTS: The conception and design of the study, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content. ŞP: The conception and design of the study, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content. MK: Analysis and interpretation of data, Revising it critically for important intellectual content. DÖ: Acquisition of data, Revising it critically for important intellectual content.

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Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
In conducting this study, the ethical principles set out in the latest revision of the Declaration of Helsinki were strictly adhered to, and the highest standards of ethical conduct were maintained throughout the research process. Permission was obtained from the author who developed the Citizenship Fatigue Scale to conduct the validity and reliability analyses. The research received approval from the Ethics Committee of Social and Humanities Research at Istanbul University (Approval date 13.03.2024, Approval number: 2476345). In addition, written permission was obtained from the relevant hospital to conduct the study. All participants were informed of the study's objectives, procedures, and potential risks and were informed of their right to withdraw at any time. The questionnaire did not request names, phone numbers, or personal details, and all identifying features were removed. Written consent was obtained from the participants. The study sample consisted of nurses who voluntarily agreed to participate. Informed consent was obtained from all participants.

Consent for publication
Not applicable.

Publication approval
All authors have signed the transfer of publication rights form for the article. The signed publication right transfer (Copyright Transfer Statement) form has been uploaded to the system.

Competing interests
The authors declare no competing interests.

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