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The Psychometric Properties of the Turkish Version of Individual Workload Perception Scale for Medical and Surgical Nurses¹

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Purpose: This study is aimed to analyze the validity and reliability of the Individual Workload Perception Scale in Turkish (IWPS_{TR}). **Methods:** Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), reliability analysis, test–retest, and descriptive statistics were used to analyze data. The sample group of the study consisted of 569 medical and surgical clinic nurses working in hospitals. **Results:** The content validity index was .983. The factor loadings of the IWPS_{TR} were between .359 and .875, the variance accounted for in this study was 62.86%. Cronbach’s alpha value was found to be .923 for the IWPS_{TR}, and between .721 and .937 for its subscales. Test–retest reliability correlation was found .826. **Conclusions:** It was concluded that the Turkish version of IWPS_{TR}, which includes 29 items and 5 subscales, could also be applied to nurses in Turkey.

Keywords: nurses; workload; scale; reliability; validity; psychometric

An institution’s most valuable assets are its human resources. Health institutions stand out by providing a positive working environment to their staff compared to their competitors. In hospitals, nurses are an essential human resource in maintaining uninterrupted, high-quality, and safe patient care. However, many health institutions suffer from difficulties when recruiting nurses due to the limitations and pressures of their financial resources (Turkmen et al., 2011). The World Health Organization (WHO) published a document “Working Together for Health” as part of its 2006 World Health Report. The report pointed out the global workforce crisis in healthcare, highlighting the critical shortage of nurses as the priority problem (WHO, 2006). Turkey has one of the lowest number of nurses among European Union countries (Kose et al., 2016). Because the number of current studies investigating the causes of a nurse shortage is very limited, the

¹ Abstract of this study was presented as an oe-poster at the 8th Congress of the European Operating Room Nurses Association (EORNA), May 4–7, 2017, Rhodes island, Greece.

causes of the nursing shortage in Turkey are not known well yet. However, the main reason for the nurse shortages in Turkey is thought to be the negative working environments that cause nurses to leave their careers (Kocaman et al., 2018). This outcome is probably a result of the fact that managers do not support the nurses enough. However, the nurse managers' authorizations are restricted via legal regulations; therefore, they don't have much freedom to make the changes that will make positive improvements in the working environment (Gok & Kocaman, 2011). Another reason for nurse shortage is that there has been a significant decrease in the number of nurse employment over the last decade, which is also indicated in the statistics yearbooks for the Turkish Ministry of Health (Kose et al., 2016). Nurses who are unable to find employment in public hospitals either accept lower pay or less job security (by working in private hospitals or working in other organizations on a contract basis) (Gok & Kocaman, 2011). As a result of the inadequacy in the number of nurses, the remaining nursing staff has to work overtime (Malatji et al., 2017). Hospitals demand a high workload (WL) from their staff and this becomes one of the main stressors for nurses directly affecting their job satisfaction, motivation, communication, and fatigue. And all of these threaten the safety of patients and other healthcare personnel (Uğurlu et al., 2015). Studies in the literature have highlighted the negative correlation between the decreased nurse staff numbers and the total inpatient mortality, cardiac arrest, failure in recovery, unplanned extubation, hospital-acquired pneumonia, sepsis levels, medication error, length of stay, and wound infection (Driscoll et al., 2018; Duffield et al., 2011; Kane et al., 2007). Furthermore, in previous studies, the increased WL, working hours, and job accidents among working nurses were found to be related to inadequate supply of nurse employment (Turkmen et al., 2011).

WL measures of nurses do not guarantee efficiency, and rules related to nurses' working environments do not identify the complexity of nurses' WLs. The environmental variables are one of the least investigated among all the various aspects of nursing WLs. However, some studies have reported that work environment factors such as support from managers and colleagues, as well as work content, have a stronger relationship with job satisfaction compared to economic variables (Neill, 2016). Furthermore, the relationship between inadequate employment and increased WL, working hours, and job accidents among working nurses are related to an insufficient supply of nurse employment (Turkmen et al., 2011).

Traditionally, the WL is measured with the nurse–patient ratio, the number of care hours provided per patient, or as care activities. Determining these indicators measures is a reaction rather than a proactive approach to dealing with workplace issues. Nurse managers should attempt to measure their nurses' WLs based on their perceptions and awareness of patient care, and they should recognize their overworking and their needs (Neill, 2016).

Whatever the administrative requirements, it can also lead to the development of interventions to improve workplace conditions and identify deficiencies in the work environment. Nurse perceptions of fundamental work necessities like administrative support and evenly shared WL are considered to be essential prerequisites in dealing with higher-level demands such as participation in nursing practice council or clinical ladders (Lacey et al., 2009). Studies in the literature revealed that stress among nurses may be attributed to increased WL, inadequate manager support (MS), and a lack of resources regarding the provision of care (Cox, 2002; Lin et al., 2011). The Practice Environment Scale of the Nursing Work Index (PES-NWI) and the Work Environment Scale (WES) are the available instruments used commonly to measure nursing practice environments in Turkey. The instruments vary among the nursing practice environment domains covered; these

concepts were either evaluated within the overall hospital organization or intensive care and emergency units. There is no Turkish version of the WL scale in the literature that can be used in all medical and surgical clinics (Erdagı & Ozer, 2015).

The Individual Workload Perception Scale (IWPS) has been designed to measure the WL of nurses, managerial support, satisfaction, and intention to stay, and all of these can guide interventions to improve the working environments without using them as measurements of organizational attributes (e.g., environmental measures) (Lin et al., 2011). Original IWPS developed to measure nurses' perceptions of their work environment concerning nursing practice has been ideal for North American healthcare establishments (Cox et al., 2010). Therefore, this scale may not be as effective as for the countries outside of North America, and this also applies to Turkey.

Because the IWPS measures multi-faceted factors (manager, unit, peer, WL, and intention to stay) related to the WL, the researchers of the current study aimed to use the Turkish version of the IWPS to determine Turkish medical and surgical nurses' WL perceptions concerning their working environment after determining the validity and reliability of the scale.

This study was carried out to reveal the psychometric properties of the IWPS regarding Turkish validity and reliability and to determine the WL perceptions of medical and surgical nurses with the developed Turkish scale.

MATERIALS AND METHODS

Study Design

This study was designed as a descriptive, cross-sectional study. Moreover, it is a validity and reliability study.

Sample Criteria and Setting

All the medical and surgical nurses who participated in the study were selected from three hospitals (one public, one private, and one university hospital) of a city located in the Aegean region of Turkey. There were a total of 1,573 nurses in this city. Providing active or direct inpatient care, working full-time in their medical or surgical clinic for at least six months, and agreeing to voluntary participation in the study were the sample selection criteria of the study. Nurse managers and supervisors were excluded since their primary tasks were not relevant to direct inpatient care. Also, women's health, child, psychiatry clinics and dialysis, polyclinic units, etc. were excluded from the scope of the study. The total number of nurses that were excluded from the study was 489. In the literature, the number of people to be reached for validity and reliability is recommended to be 10 times the number of items on the scale (Cai et al., 2017; Gozum et al., 2016). Therefore, in the study, it was necessary to reach a minimum of 290 nurses, 10 times the number of items in the IWPS (29 items). Considering that the number of questionnaires returned may be low due to incomplete, inaccurate, or low-suitability questionnaires, a total of 250 questionnaires were distributed to each hospital and it was projected to create a sample group of 750 people in total. A total of 590 questionnaires were filled by the nurses as 160 nurses were rejected to participate. As 21 of them were either completed incorrectly and incompletely, a total of 569 questionnaires were considered for the evaluation. Therefore, the rate of questionnaires taken into consideration was 75%.

Data Instrument

The data were collected using the “Nurse Information Form” and “The Individual Workload Perception Scale-Revised.”

Nurse Information Form: It consists of examining the socio-demographic characteristics of the participants of the study, such as age, marital status, education level, length of service at the hospital, and the hospital and unit.

The IWPS-Revised: IWPS was first developed by Cox et al. (2006) and included 29 items with five subscales, which are MS, peer support (PS), unit support (US), WL, and intention to stay (IS). Also, a total of all subscale scores gives an “overall nursing satisfaction” score. The IWPS uses the same five-point Likert scale as the original one to obtain data from the respondents concerning the assessment of various aspects of the nursing field, including administration and psychometric measurements. Higher scores from the scale indicate a higher frequency of nurse perceptions regarding WL and support system issues (Cox et al., 2010; Cox et al., 2006; Lin et al., 2011). The Internal consistency of the IWPS was determined by using Cronbach’s alpha coefficients. Cronbach’s alpha coefficient for the total IWPS was found to be .93, and Cronbach’s alpha coefficients of the subscales were found to be .88 for MS, .86 for PS, .68 for US, .80 for WL, and .89 for IS (Cox et al., 2010).

The Process of Adaptation of An Instrument for Use in Other Countries

The IWPS’ adaptation steps are as follows:

Step 1: Translation of the original instrument into the target language: Two independent translators, certified and bilingual (who were fluent in English and with systemic training) translated the IWPS from English to Turkish (Gozum et al., 2015; Kısacık et al., 2019; Sousa & Rojjanasrirat, 2011). While the first translator was knowledgeable about healthcare terminology and the structure of IWPS, the second translator was not aware of the medical terminology and the structure of the scale. In this way, two translated versions containing words and sentences covering both medical and common spoken language with cultural nuances were obtained (Sousa & Rojjanasrirat, 2011).

Step 2: Comparison of the two translated Turkish versions of the IWPS: After a focus-group panel that included two translators, an academician nurse, and a biostatistics expert performed the comparison of the Turkish versions with the originals, the final IWPS_{TR} was agreed on (Sousa & Rojjanasrirat, 2011). Minor revisions in the terminology of the Turkish version of the scale were carried out on two items of the IWPS due to cultural and linguistic differences: The phrase “social workers” was translated into “social service specialists” (Item 8), and the expression of “a chaplain” was translated into “religious official” (Item 9).

Step 3: Obtaining expert opinions (Content validity index—CVI): A committee evaluated the similarity of items, and response IWPS_{TR}’ items regarding wording, sentence structure, meaning and relevance. This expert committee was formed of eight academic nurse members from nursing faculties. The academic nurse members included four surgical nursing and four medical nursing academicians who were experienced in scale adaptation and had at least a nursing doctorate.

The Davis technique was used for content validity based on expert committee opinions (Davis, 1992). The experts were asked to assess each item over 4 points as A = not relevant (1 point), B = partially or somewhat relevant and need necessary amendments (2

points), C = quite relevant with minor amendments (3 points), and D = highly appropriate (4 points) (Polit & Beck, 2013). The CVI of each item was calculated by dividing the number of experts who marked C and D, with the total number of experts, and the value greater than 80% was regarded as a standard for testing expert validity (Davis, 1992; Sousa & Rojjanasrirat, 2011). Based on the comments of the experts, for the items with grades C and D of scales in the Turkish version of the scale, some minor amendments were made in word and language use.

Step 4: Pilot testing of the pre-final version of the instrument—cognitive debriefing: Data of the pilot study were collected from 30 medical and surgical clinic nurses from the total sample to evaluate the comprehensibility of the statements of the Turkish version of IWPS. In the preliminary application, no negative feedback was received for the items in the scale, and it was decided that the measurement tool should be applied to nurses who met the study criteria to evaluate the psychometric properties of the measurement tool.

Step 5: Data collection: Questionnaires were applied to 569 medical and surgical clinic nurses between March and May 2016. An appropriate period, other than during treatment and practice hours, was selected in which the medical and surgical nurses could answer the questions on the questionnaires. This process was carried out separately for each unit. They were asked to fill in the questionnaires anonymously and put them in sealed envelopes to ensure confidentiality. Medical and surgical nurses filled up the questionnaires in the break room after their shift finished. While the nurses answered the questionnaires form, the researchers were not present with the nurses. The researchers collected questionnaires in these sealed envelopes. It took an average of 15 minutes for each nurse to answer the questions on the questionnaire form. Second data were obtained for the test-retest reliability with 163 nurses 3 weeks after the first application.

Step 6: Psychometric tests:

Validity: Exploratory Factor Analysis (EFA) was used for the validity of the IWPS_{TR}. Kaiser–Meyer–Olkin (KMO) sampling adequacy and Bartlett’s test of sphericity tests were used for EFA (Albayrak et al., 2018; Kaiser, 1974; Kısacık et al., 2019). In this study, all the data obtained from these 569 nurses were used for EFA. For CFA, data obtained from 187 nurses were used to test the factor structure obtained from EFA, unlike 569 people used for EFA. The random sampling method was used for both EFA and CFA. The goodness of fit of the hypothesized model was calculated by the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and chi-square statistic to degrees of freedom (χ^2/df) (Alhalal & Jackson, 2021). Corrected item-total correlations were specified for reliability.

Reliability: The item-total correlation, test-retest reliability, and Cronbach’s alpha reliability coefficients were calculated for internal consistency analysis of the scale. For test–retest reliability, 163 nurses, a subset of the sample consisting of 569 nurses, were used. Also, mean and standard deviation values were calculated for the items, subscale, and scale. In statistical analysis, $p < .05$ was considered significant. Data were evaluated with SPSS version 21.0 for windows (SPSS, Inc., Chicago, USA). CFA was performed using the LISREL 8.71.

Ethics

Researchers obtained permission from the author via e-mail (kcox@cmh.edu, email; 01 January 2016) to be able to use the IWPS in Turkey. (Number 2016/09; 06 February 2016). The ethical approval from the Scientific Research and the Ethical Committee (2016/96)

and permissions from the managers of hospitals were obtained to carry out the study. Medical and surgical nurses were explained the aim of the study and their verbal and written consent was obtained. The study was an appropriately planned procedure according to the Helsinki Declaration (available at www.ub.edu).

RESULTS

Nurses' Socio-Demographic Characteristics

The nurse respondents ($n = 569$) had a mean age of 31.50 ± 7.95 years; of these, 83.8% ($n = 477$) were female and 16.2% ($n = 92$) were male. The mean duration of their time working as professional nurses was 2.42 ± 1.12 years. Of the study participants, 65% had worked as a clinical nurse, and 61% had worked in public hospitals (Table 1).

Content Validity Index

The CVI for the IWPS_{TR} scale was found to be .983. There was no statistically significant difference among the scores of the experts (Kendall $W = .014$; $p = .983$).

Factor Analyses

In EFA, the KMO value was found to be .925 while the sample size was found to be adequate for analysis. The Bartlett's sphericity test was found to be 9142.567 ($p < .001$) that the values were significant and the data normally distributed. The 29 items under five subscales explained 62.860 % of the total variance of the model. The MS subscale accounted for 19.913% of the total variance, had a higher relative impact on the scale, followed by PS (15.530%), US (11.631%), IS (10.986%), and WL (4.800 %) subscales. There wasn't any low factor loading in all of the 29 items, so no item was excluded from the scale (Table 2).

CFA was performed to determine the construct validity of the items in the scale and the adequacy of the model's fit to the data. Accordingly, when all the fit criteria obtained for the model were evaluated, none of the items in the CFA process was excluded from the scale. The eigenvalue of the scale at CFA was found to show a five-dimensional structure above 1, and its original structure was confirmed (Figure 1). The goodness-of-fit indices for construct validity in the CFA are presented in Table 3 (Albayrak et al., 2018; Polit & Beck, 2013). The results were $\chi^2/df = 2.870$, RMSEA = .065, NFI = .950, SRMR = .061 and AGFI = .860, NNFI = .960, and CFI = .970 (Table 3).

Reliability Analyses

The corrected item-total correlations of each item ranged from .406 to .862. The total Cronbach's alpha coefficients for reliability analysis were calculated as .937 for MS, .884 for PS, .721 for US, .850 for IS, and .736 for WL subscales, with .923 established for overall IWPS_{TR} that comprised all 29 items (Table 4). While the test-retest correlation coefficient for the general IWPS_{TR} was .826, they were as follows for the subscales: .832 for MS, .814 for PS, .787 for US, .769 for IS, and .756 for the WL.

Descriptive Statistics for Items, Subscales, and IWPS_{TR}

According to responses given by nurses, the measured mean values ($\bar{X} \pm SD$) for MS, PS, US, IS, WL subscales, and nurse satisfaction (NS) were 3.25 ± 1.10 , $3.88 \pm .80$, $3.52 \pm .75$, 3.59 ± 1.09 , $3.55 \pm .89$, and $3.54 \pm .69$, respectively. According to the 5-point Likert score, all of the values were above 3 points. The measured overall mean value for IWPS_{TR} was $3.54 \pm .69$ (Table 4).

TABLE 1. Nurses' Demographic Characteristics (n = 569)

Variables	Groups	n	%
Gender	Female	477	83.8
	Male	92	16.2
Marital status	Married	347	61.0
	Single	222	39.0
Age (year)	<i>Mean ± SD = 31.50 ± 7.95</i>		
	18–22	91	16.0
	23–28	140	24.6
	29–34	101	17.8
	35–40	151	26.5
	≥ 41	86	15.1
Education status	College	152	26.7
	Pre-license	184	32.3
	Diploma	209	36.7
	Bachelor's and master	24	4.2
Current Hospital	Public hospital	347	61
	University hospital	169	29.7
	Private hospital	53	9.3
Position	Clinical nursing	370	65
	Intensive care unit nurse	120	21.1
	Emergency nurse	52	9.1
	Operating room nurse	27	4.7
Professional working year	<i>Mean ± SD = 2.42 ± 1.12</i>		
	< 1	41	7.2
	1–5	177	31.1
	6–10	131	23.0
	11–15	84	14.8
	≥ 16	136	23.9

TABLE 2. Factor Loadings for EFA in the IWPS_{TR}

Factors	Factor Loadings	Eigenvalues	% of Variance	Cumulative %
Item no	Factor 1:MS	5.775	19.913	19.913
1	If the nurse manager is off duty, the unit is encouraged to contact her/him when there are staffing difficulties.	.766		
2	If I complain about my WL to the nurse manager she/he will be empathetic.	.824		
3	I stay in my current position because of the support of my nurse manager.	.813		
4	The nurse manager assists in working with patients and families who are unhappy with their care.	.865		
5	The nurse manager is actively involved in securing enough staff for each shift that is needed.	.868		
6	The nurse manager actively works to fill open positions on the unit on time.	.875		
7	My manager is competent in providing basic patient care in the unit.	.830		
8	The charge nurse in my unit provides support for patient care when it is needed.	.432		
	Factor 2:PS	4.504	15.530	35.443
9	I work with nurses whom I respect professionally.	.700		
10	When I feel overwhelmed I can count on other nurses to help me.	.745		
11	The nurses work as a team.	.836		

(Continued)

TABLE 2. Factor Loadings for EFA in the IWPS_{TR} (Continued)

Factors	Factor Loadings	Eigenvalues	% of Variance	Cumulative %
12	The nurses with whom I work are competent when caring for our typical patient population.	.767		
13	I would feel comfortable having one of my family members cared for by staff on my unit.	.770		
14	The nurses with whom I work are an important reason why I stay in my current job.	.768		
Factor 3:US				
		3.373	11.631	47.074
15	Equipment (blood pressure machines, saturation monitors, scales, lifts, wheelchairs, thermometers) for patient care is available when I need it.	.687		
16	When the patients in my unit need them, the social service specialists are present in the hospital.	.762		
17	In the hospital, a religious official is present to provide emotional support for a patient and/or their family when the patient is at risk of death (blue code, diagnosed with death risk), or if the patient dies.	.761		
18	Supplies (IV supplies, catheters, dressings, syringes, linens) for patient care are available when I need them.	.742		
19	The hospital pharmacy provides sufficient support during the treatment process.	.612		
20	I can provide adequate psychological/emotional support to the patients assigned to me.	.359		

(Continued)

TABLE 2. Factor Loadings for EFA in the IWPS_{TR} (Continued)

Factors	Factor Loadings	Eigenvalues	% of Variance	Cumulative %
Factor 4:IS				
21	My current WL will cause me to look for a new position.	.744		
22	When I consider my WL, my current work environment makes me want to stay and work here.	.477		
23	When I consider my WL, I do not plan to stay in my present service and/or position throughout the next year.	.831		
24	When I consider my WL, I plan to stay in my present position for at least (one) year.	.806		
25	When I consider my WL, I intend to look for a new job in a different unit and/or institution during the following (one) year.	.817		
Factor 5:WL				
26	During my shift, a break (including food & beverages) of at least 30 minutes is provided.	.422		
27	The duties in my unit are delivered fairly	.550		
28	I think my WL is reasonable.	.453		
29	I have voiced concerns about my WL being too heavy to the nurse manager or the unit's charge nurse.	.499		
		1.392	4.800	62.860

Note. IWPS = Individual Workload Perception Scale; MS = Manager Support; PS = Peer Support; US = Unit Support; IS = Intent to Stay; WL = Workload; EFA = Exploratory Factor Analysis; Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) = .925 Bartlett's Test of Sphericity: $\chi^2 = 9142$.

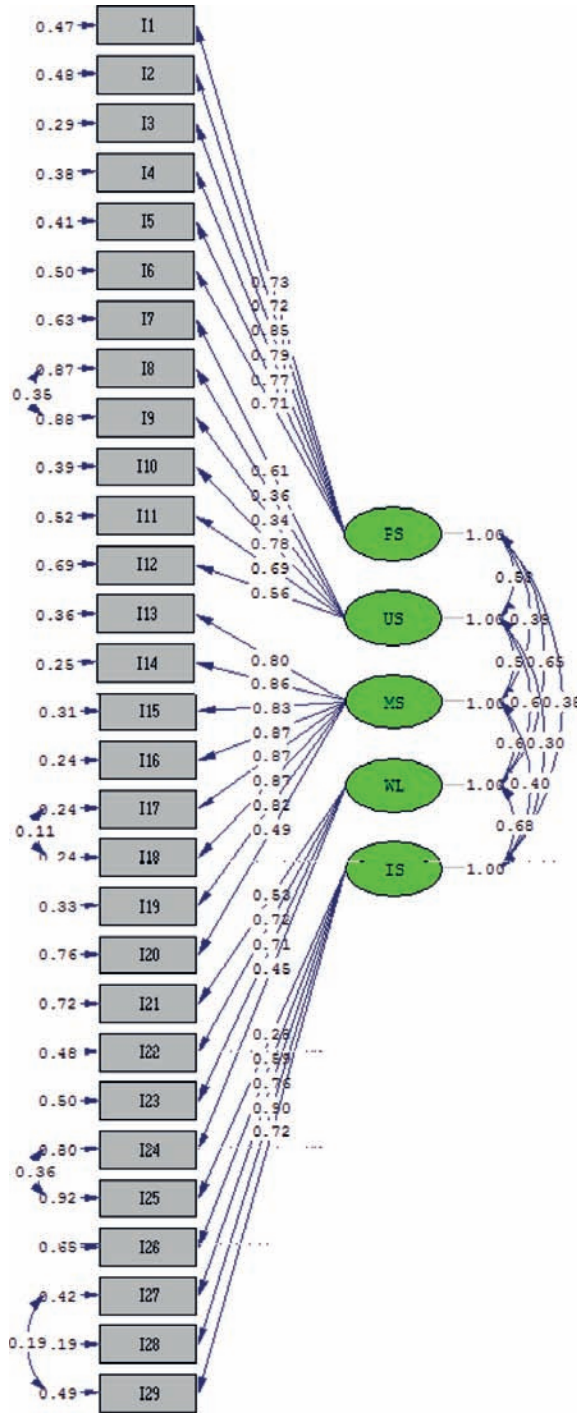


Figure 1. Factor loadings for CFA of IWPS_{TR}.

Note. CFA = Confirmatory Factor Analysis; IWPS-R = Revised Individual Workload Perception Scale- Turkish; $\chi^2 = 1041.97$; DF = 363; p -value < .001, RMSEA = .064.

TABLE 3. Results of Model’s Fit for Individual Workload Perception Scale

Fit Indexes	Good Fit	Acceptable Fit	Model	Result
RMSEA	0 < RMSEA < .05	.05 < RMSEA < .08	.065	Acceptable
NFI	.95 ≤ NFI ≤ 1	.90 ≤ NFI ≤ .95	.950	Acceptable
NNFI	.97 ≤ NNFI ≤ 1	.95 ≤ NNFI ≤ .97	.960	Good fit
CFI	.97 ≤ CFI ≤ 1	.95 ≤ CFI ≤ .97	.970	Good fit
SRMR	0 ≤ SRMR ≤ .05	.05 ≤ SRMR ≤ .10	.061	Acceptable
AGFI	.90 ≤ GFI ≤ 1	.85 ≤ AGFI ≤ 0.90	.860	Acceptable
χ^2/DF	<3	<5	2.870	Good fit

Note. RMSEA = Root Mean-Square Error of Approximation; NFI = Normed Fit Index; NNFI = Nonnormed Fit Index; CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; AGFI = Adjusted Goodness-of-Fit Index.

TABLE 4. Reliability Analysis (Cronbach’s alpha Coefficients), Corrected Item-Total Correlations, and Means ± SD for Items and Subscale of the IWPS_{TR} Version

Item No	Factors	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted	Item Means ± SD	Factor Means ± SD	Cronbach’s Alpha
	Factor 1: MS				3.250 ± 1.102	.937
1		.773	.928	3.389 ± 1.287		
2		.830	.924	3.184 ± 1.339		
3		.795	.927	3.015 ± 1.419		
4		.841	.924	3.094 ± 1.311		
5		.854	.923	3.110 ± 1.304		
6		.862	.922	3.206 ± 1.301		
7		.800	.927	3.360 ± 1.272		
8		.490	.949	3.736 ± 1.396		

(Continued)

TABLE 4. Reliability Analysis (Cronbach's alpha Coefficients), Corrected Item-Total Correlations, and Means \pm SD for Items and Sub-scale of the IWPS_{TR} Version (Continued)

Item No	Factors	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Item Means \pm SD	Factor Means \pm SD	Cronbach's Alpha
	Factor 2: PS				3.884 \pm .807	.884
9		.674	.868	3.671 \pm .996		
10		.678	.868	3.743 \pm 1.107		
11		.793	.848	4.017 \pm .994		
12		.724	.863	4.075 \pm .841		
13		.709	.864	4.158 \pm .877		
14		.658	.875	3.643 \pm 1.219		
	Factor 3: US				3.521 \pm .759	.721
15		.450	.685	4.144 \pm 1.015		
16		.448	.688	2.934 \pm 1.390		
17		.419	.709	2.341 \pm 1.560		
18		.607	.642	3.985 \pm 1.049		
19		.491	.676	3.735 \pm .990		
20		.406	.698	3.977 \pm .920		
	Factor 4:IS				3.593 \pm 1.093	.850
21		.582	.839	3.784 \pm 1.369		
22		.473	.863	3.406 \pm 1.275		

(Continued)

TABLE 4. Reliability Analysis (Cronbach’s alpha Coefficients), Corrected Item-Total Correlations, and Means \pm SD for Items and Subscale of the IWPS_{TR} Version (Continued)

Item No	Factors	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted	Item Means \pm SD	Factor Means \pm SD	Cronbach’s Alpha
23		.742	.796	3.674 \pm 1.389		
24		.771	.788	3.436 \pm 1.424		
25		.738	.797	3.687 \pm 1.437		
	Factor 5: WL				3.555 \pm .896	.736
26		.467	.714	3.598 \pm 1.325		
27		.692	.595	3.887 \pm 1.071		
28		.516	.685	3.160 \pm 1.333		
29		.469	.708	3.806 \pm 1.185		
<i>Total</i>					3.540 \pm .690	.923

DISCUSSION

This is the first psychometric study conducted by using the IWPS_{TR} scale in Turkey for the measurement of nurse perceptions on WL and job satisfaction.

CVI is the most widely used quantitative evaluation among nursing researchers (Polit & Beck, 2013). It has been reported in the literature that the averaging calculation of .78 or above is the minimum acceptable value as a criterion for CVI (Davis, 1992; Sousa & Rojjanasrirat, 2011). The CVI value in our study was found to be above the acceptable limit of considerable consistency and the content validity was determined to be statistically sufficient in this study. Kendall W’s analysis results have shown the unity of the independent experts’ views.

This study applied EFA, which remains one of the most extensively employed techniques among validation studies conducted on psychological tests. As the KMO coefficient approaches the value of 1, it means that the data are more suitable for analysis (Kısacık et al., 2019). As a result of EFA, the items in the IWPS_{TR} were centered on five dimensions. Explanatory variance is expected to be 30% and above in scales with a single factor and above in scales with a single factor structure, and higher in scales with multifactor structure (Kısacık et al., 2019), the explanatory variance was found to be 62.8% in this study.

In the study, CFA was performed with the use of the LISREL 8.71 program to examine the construct validity of the IWPS and to check whether the items were in the specified

sub-dimensions. The developed model is presented in Figure 1. According to the CFA result, model-data fit coefficients for the IWPS_{TR} consisting of five subscales were found to be .25 and above (Figure 1). On the other hand, modification/correction was made in the study since the value obtained by dividing the Chi-Square value by the degree of freedom was 4.35. Accordingly, modification/correction between items 18 and 17; items 9 and 8; items 25 and 24; items 29 and 27, was done respectively, and The Chi-Square value was managed to be reduced. The Chi-Square Goodness-of-fit value calculated for model-data fit was determined to be significant after the necessary modifications were made in the study. Accordingly, the ratio of χ^2 / df of freedom was calculated as 2.87, and the fact that this value was below 3 indicates that the model is compatible (Albayrak et al., 2018; Şimşek, 2007). The RMSEA value is .65, which means an acceptable fit (.05 RMSEA .08). The result of the EFA and the CFA, Cronbach's alpha, and corrected item-total correlation confirmed the validity and reliability of the IWPS without any items (Maltby et al., 2017). These findings are similar to those of the original IWPS, according to the literature (Cox et al., 2006; Lacey et al., 2009; Lin et al., 2011).

In this study, the Cronbach's alpha value for IWPS_{TR} was found to be .923, while .937 for the MS subscale, .884 for the PS subscale, .721 for the US subscale, .850 for the IS subscale and .736 for the WL subscale. The Cronbach's Alpha for the original scale was .97, and for the five subscales was .88, .86, .68, .80, and .89, respectively (Cox et al. 2010). The IWPS demonstrated reliability in this study, similar to previous studies (Cox, 2002; Cox et al., 2006; Lacey et al., 2009; Lin et al., 2011). The fact that Cronbach's alpha coefficient is between .61 and .80 indicates that the measurement tool is "moderately" reliable and between ".81 and 1.00" highly reliable (Kısacık et al., 2019). Furthermore, the strong internal consistency of the Turkish IWPS was demonstrated. In this study, the Test-retest score of the IWPS_{TR} was found to be .826, which indicated a strong correlation. The fact that the responses obtained from the same participant with the same measurement tool were similar and consistently shown that the reliability of the measurement tool was strong (Gozum et al., 2015).

The overall satisfaction and subscales mean scores of the IWPS_{TR} were compared to that of the original IWPS (Cox et al., 2010). The overall satisfaction and subscales mean scores for the original scale were found 3.88/.56, and for the five subscales were 3.66/.80 (MS), 4.16/.64 (PS), 3.92/.58 (US), 3.93/.86 (IS), and 3.77/.73 (WL), respectively (Cox et al., 2010). Low values of WL perceptions and job satisfaction were found among the Turkish nurses in this study compared to the findings of American nurses. This result was similar to recent literature in which Turkish nurses describe the inadequacy in the number of nurses, resources, and lower pay or less job security as the negative working environments (Gok & Kocaman, 2011; Kocaman et al., 2018; Kose et al., 2016). Overall, job satisfaction can affect a nurse's performance, communication with co-workers, and intention to stay in the current job. Given the nursing staff deficit, it is important to identify and understand the factors contributing to job dissatisfaction in nurses (Cox et al., 2010). In this study, an inadequate level of managerial support is a real factor contributing to dissatisfaction in the workplace. Perception of MS was found to be the lowest among the five subscales of Turkish's nursing work environment and was an important factor in terms of WL.

Limitations

The study had some limitations. This study was conducted only in one of the cities in Turkey. It is difficult to determine the differences between the working environment with the diversity of regions, sizes, and types of institutions included in hospital quality using this scale. Secondly, nurse perceptions of the individual WL have been limited by their responses to IWPS. Also, the data were collected via self-report questionnaires in the nurses' break room after their shift finished. For this reason, nurses might have affected each other on their WL.

CONCLUSION

The results of this study demonstrated that The Turkish version of the IWPS revealed perceptions of Turkish nurses toward WL and is a valid and reliable measurement tool at a satisfactory level. Individual WL perception is important in terms of guiding the working environment and improving patient outcomes. The utilization of the IWPS_{TR} will help identify those factors that clinic nurses consider as an increase in WL in their work environment. Similar studies can be carried out as advanced study, which involves multiple hospitals and nurses than that used in this study.

The authors suggest that as the fit of WL perceptions has been determined in the Turkish culture, this concept may also prove to be suitable for the Eastern cultures. The effective assessment of nurse WLs offers opportunities for reflection on their work satisfaction and intention to stay. Therefore, nurse managers could reduce the WL levels of perception to nurses and provide support to motivate nurses. Potentially, unfavorable working environments that negatively affect nurses' intention to stay could be resolved with effective guidance and managerial support.

The Nursing Implication for Practice, Research, and Education

In Nursing Practice. Individual WL perception is important in terms of guiding solutions to the problems of nurses' WL and improving nurses' intentions to stay in work. Working environment factors including MS, PS, and also US have been determined to have a closer relationship with the WL. Once a nursing manager distinguishes affecting factors on WL actions can be taken towards creating a more satisfying work and caring environment for clinical nurse specialists. Nurse managers using the IWPS_{TR} can solve problems of nurses' WL and improve nurses' intentions to stay at work.

In Nursing Education. The IWPS can increase the awareness and perception of managers on the nurses' intention to stay which is an important problem of a working environment. So, nurse managers can prioritize the development and implementation of education and practice strategies that include reasonable work assignments for nursing staff, enough equipment to carry out nursing care, and education opportunities to maintain and enhance professional competencies.

In Nursing Research. Nurse managers can use IWPS_{TR} to possibly reflect the WL-related working environment in hospitals from nurses' perspectives. When the tool is successfully used inwards WL studies, nurse managers will obtain the best findings to develop and maintain effective staffing and WL practices. Further studies can be planned

to improve the IWPS and to compare the perception of nurses regarding WL in various units of hospitals.

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APPENDIX. ORIGINAL AND TURKISH VERSIONS OF THE INDIVIDUAL WORKLOAD PERCEPTION SCALE-REVISED

Individual Workload Perception Scale (IWPS) – Revised		
	<i>Original</i>	<i>Turkish</i>
	Think about your typical daily workload over the past six months and answer the following questions Scale: 1 = Strongly Disagree 2 = Disagree 3 = Unsure 4 = Agree 5 = Strongly Agree	Bu sorulara son altı ayda ki günlük iş yükünüzü düşünerek cevap veriniz Ölçek 1=Kesinlikle Katılmıyorum 2=Katılmıyorum 3=Kararsızım 4=Katılıyorum 5=Kesinlikle Katılıyorum
Items		
1	If the nurse manager is off duty, the unit is encouraged to contact her/him when there are staffing difficulties.	Hemşirelik hizmetleri müdürü izinliyken; personel sıkıntısı olduğunda birim çalışanları onunla rahatlıkla iletişim kurar.
2	If I complain about my workload to the nurse manager she/he will be empathetic.	İş yükümle ilgili şikayetimi hemşirelik hizmetleri müdürüme iletirsem bana anlayış gösterir.
3	I stay in my current position because of the support of my nurse manager.	Hemşirelik hizmetleri müdürümün desteğini hissettiğim için şu an ki görevimde kalmaktayım.
4	The nurse manager assists in working with patients and families who are unhappy with their care.	Bakımlarından memnun olmayan hasta ve hasta yakınları olduğunda hemşirelik hizmetleri müdürüm bize yardımcı olur.
5	The nurse manager is actively involved in securing enough staff each shift that is needed.	Hemşirelik hizmetleri müdürü servisteki personel yetersizliğini zamanında gidermek için gerekeni yapar.
6	The nurse manager actively works to fill open positions on the unit in a timely manner.	Hemşirelik hizmetleri müdürü, her vardiyada ihtiyaç duyulan yeterli personeli sağlamak için aktif olarak uğraşır.
7	My manager is competent in providing basic patient care in the unit.	Hemşirelik hizmetleri müdürüm, servisteki temel hasta bakımını sağlama konusunda işin ehlidir / uzmanıdır.
8	The charge nurse in my unit provides support for patient care when it is needed.	Servisimdeki sorumlu hemşire, gerektiğinde hasta bakımına destek verir.

(Continued)

Individual Workload Perception Scale (IWPS) – Revised

9	I work with nurses whom I respect professionally.	Mesleki profesyonelliğine saygı duyduğum hemşirelerle çalışıyorum.
10	When I feel overwhelmed I can count on other nurses to help me.	Kendimi iş yoğunluğundan bunalmış hissettiğimde diğer hemşirelerin bana yardım edeceklerini bilirim.
11	The nurses work as a team.	Servisimdeki hemşirelerle iyi bir ekibiz.
12	The nurses with whom I work are competent when caring for our typical patient population.	Birlikte çalıştığım hemşireler, birimimize özgü hasta bakımı vermede gerekli bilgi ve beceriye sahiptir.
13	I would feel comfortable having one of my family members cared for by staff on my unit.	Servisimdeki hemşire arkadaşlarım, ailemden birisine bakım verirse kendimi rahat hissederim.
14	The nurses with whom I work are an important reason as to why I stay in my current job.	Servisimdeki hemşireler, şu an ki işimde kalmamın önemli bir nedenidir.
15	Equipment (blood pressure machines, saturation monitors, scales, lifts, wheelchairs, thermometers) for patient care is available when I need it.	Hasta bakımı için ihtiyaç duyduğum ekipman-donanım (tansiyon aleti, pulse oksimetre, değerlendirme ölçekleri, tekerlekli sandalye, ateş ölçerler vb.) servisimde mevcuttur.
16	When the patients in my unit need them, the social service specialists are present in the hospital.	Servisimdeki hastaların ihtiyaç duyması durumunda, kurumumda sosyal hizmet uzmanları hazır bulunur.
17	When a patient experiences a major crisis (code blue, new life-threatening diagnosis) or dies a chaplain is available to support the patient and/or their family.	Bir hastada yaşam tehlikesi (mavi kod, yaşamı tehdit eden tanı alması gibi) olduğunda veya hasta öldüğünde, hasta ve/veya ailesine manevi destek vermek için kurumumda bir manevi destek görevlisi hazır bulunur.
18	Supplies (IV supplies, catheters, dressings, syringes, linens) for patient care are available when I need them.	Hasta bakımı için gerekli olan pansuman seti, kateter, IV setler, enjektör, nevresim gibi malzemeler ihtiyaç duyduğumda servisimde hazır bulunur.
19	Pharmacy services provide adequate support in the medication process.	Kurum eczanesi, tedavi sürecinde yeterli desteği sağlar.
20	I am able to provide adequate psychological/emotional support to the patients assigned to me.	Hastalarımın yeterli psikolojik/duygusal desteği sağlayabilirim.

(Continued)

Individual Workload Perception Scale (IWPS) – Revised

21	My current workload will cause me to look for a new position.	Buradaki iş yükümden dolayı servis/ birim ve/veya görev değişikliği düşünüyorum.
22	My current work environment makes me want to stay and work here.	İş yükümü düşündüğümde, şu an ki çalışma ortamımdan dolayı burada kalıp çalışmayı isterim.
23	I do not plan to stay in my current position for the next 12 months.	İş yükümü düşündüğümde, önümüzdeki bir yıl içinde şu an ki servis ve/veya görevimde kalmayı planlamıyorum.
24	I plan to stay in my current position for at least the next 12 months.	İş yükümü düşündüğümde, en az bir yıl şu an ki görevimde kalmayı planlıyorum.
25	I intend to look for a new position in a different unit or in a different organization within the next 12 months.	İş yükümü düşündüğümde, önümüzdeki 1 (bir) yıl içinde farklı bir servis ve /veya kurumda yeni bir görev arama niyetindeyim.
26	I am able to take at least a 30 minute meal break during my shift.	Mesai saatim içerisinde en az 30 dakika mola (yeme-içme) verilir.
27	Individual assignments are fairly distributed within the unit given the available resources.	Servisimdeki görevler, adil bir şekilde dağıtılır.
28	Most days I feel my workload is reasonable.	İş yükümün makul olduğunu düşünüyorum.
29	I have voiced concerns about my workload being too heavy to the nurse manager or charge nurse.	Hemşirelik hizmetleri müdürüne veya sorumlu hemşireye iş yükümün çok ağır olduğunu dile getirdim.
